KOMEX
5455 Garden Grove Blvd. Second Floor
Westminster CA 92683 USA
TEL. (714) 379-1157
FAX. (714) 379-1160
web site: www.komex.com
email: mausburn@losangeles.komex.com

ENVIRONMENT AND WATER RESOURCES

January 19, 2005
287-001

Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

Attn: Mr. Nebu John

Re: Facilities Investigation Report
Associated Plating Company
9636 Ann Street, Santa Fe Springs, California

Dear Mr. John,

Komex is pleased to submit the attached *Facilities Investigation Report* for the Associated Plating Company (APC) metal plating facility located at 9636 Ann Street, in the city of Santa Fe Springs, California. The report describes previous investigations, document review of nearby sites and the procedures and results obtained from the soil and soil gas investigation performed at the Associated Plating Company in September 2004. If you have any questions or comments, feel free to call either Mark or myself at (714) 379-1157, extension 103 and 152, respectively.

Sincerely,

Mark P. Ausburn, R.G.
Senior Manager

Lee Paprocki, R.G.
Hydrogeologist

cc:

Mr. Dave Klunk
Santa Fe Springs Fire Department
Hazardous Materials Division
11300 Greenstone Avenue
Santa Fe Springs, CA 90670

Mr. Clare Golnick
APC Investments
FX-6: Personal Privacy

Mr. Michael Evans
Associated Plating Corporation
9636 Ann Street
Santa Fe Springs, CA 90670

FACILITIES INVESTIGATION REPORT
ASSOCIATED PLATING COMPANY
SANTA FE SPRINGS, CALIFORNIA

PREPARED FOR:

Associated Plating Company

9636 Ann Street

Santa Fe Springs, California, 90670

PREPARED BY:

KOMEX

5455 Garden Grove Boulevard, Second Floor

Westminster, CA 92683

January 19, 2005
287-001

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

APC	Associate Plating Company
AOPC	areas of potential concern
API	American Petroleum Institute
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes (collectively referenced)
CA	California
CAM	California Administrative Manual
cis-1,2-DCE	cis-1,2-dichloroethene
cm/sec	centimeters per second
Dayton	Dayton Superior
1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-Dichloroethene
DHS	California Department of Health Services
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
ESLs	Environmental Screening Levels
feet	ft
foot	ft
g/cc	grams per cubic centimeters
Geohazard	Geohazard Investigations, Inc.
LARWQCB	Regional Water Quality Control Board, Los Angeles Region
LNAPL	light non-aqueous liquid
MCLs	maximum contaminant levels
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
MSL	mean sea level
MTBE	methyl tert-butyl ether
NPL	National Priorities List
OD	outside diameter
Omega	Omega Chemical facility

OU	Operable Unit
PBR	Permit by Rule
PCE	tetrachloroethene
PCOCs	potential chemicals of concern
PID	photoionization detector
ppm	parts per million
PRG	Preliminary Remediation Goal
QA	quality assurance
QC	quality control
RBSLs	Risk-Based Screening Levels
SGS	soil gas survey
Sq ft	square foot
SVOCs	semi-volatile organic compounds
SWMUs	Solid Waste Management Units
TCE	trichloroethene
TPH	total petroleum hydrocarbons
TPHd	total petroleum hydrocarbons in the diesel range
TPHg	total petroleum hydrocarbons in the gasoline range
ug/kg	micrograms per kilogram
ug/L	micrograms per Liter
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
UST	underground storage tank
Valvoline	Valvoline Oil Company
VC	vinyl chloride
VOCs	volatile organic compounds
WDI	Waste Disposal Inc.

1 INTRODUCTION

This report presents the comprehensive results of previous investigations and the recent additional Komex investigation conducted in September 2004 of organic and inorganic constituents in soil beneath the Associated Plating Company (APC) metal plating facility (the Site – **Figure 1**). The Site is located at 9636 Ann Street in the City of Santa Fe Springs, California.

The work was performed in accordance with: the *Workplan for Facility Investigation* prepared by Komex and dated June 25, 2004 (Komex, 2004). This workplan incorporated the general and specific Department of Toxic Substances Control (DTSC) comments from their letters to APC, dated April 1, and June 14, 2004 (DTSC, 2004a; DTSC, 2004b). This report has been prepared in accordance with the *Corrective Action Consent Agreement* entered into between APC and the DTSC on January 5, 2004.

1.1 FACILITY BACKGROUND

APC operates a plating shop for small metallic components at 9636 Ann Street in the City of Santa Fe Springs, California (**Figures 1 & 2**). The Site consists of an approximately 17,000 square foot (sq. ft.) concrete tilt-up building, situated on approximately 1.25 acres. The plating facility specializes in the use of fused tin and tin/lead alloys using electro- and electroless plating. Nickel and copper are the most commonly used metals. Precious metal plating is also performed using silver, gold, tin, zinc, and aluminum. Several plating lines with associated tanks are located within the facility. APC handles hazardous waste in two units authorized by the DTSC on August 4, 1993 under Permit by Rule (PBR).

For purposes of discussion and points of reference, the Site can be divided into six main areas, described as follows (**Figure 3**):

- Administrative offices, located in the northwestern area of the building;
- Shipping, receiving and inspection room, located in the northeastern area of the building;
- Main plating facility, occupying the rest of the building that includes lines one through five, the floor channels, the maintenance room and the maintenance stockroom;

- Outside storage, located to the east of the building that includes from north to south: the former tetrachloroethene (PCE) above ground storage tank (AST), empty drum storage area, a chemical storage area and a second area of chemical storage located in the southeastern corner of the Site;

- Wastewater treatment area, located to the south of the building that includes: holding tanks, clarifiers, filter press, batch neutralization tanks, sludge dryer, cyanide destruction unit, stripping department and ion exchange units. The former vapor degreaser was also located in this area; and

- Employee parking and vacant land, located to the east of the outside storage.

1.2 OBJECTIVE

The objective of this investigation was to delineate the lateral and vertical extent of inorganic and organic contamination, regardless of source, within the soils above the buried concrete pad, to the APC property boundaries (defined as Operable Unit-1 or OU-1 – **Figure 4A**).

Operable Units-2 and 3 (OU-2 and OU-3) will be addressed at a later stage, after corrective action has been completed at OU-1.

2 PREVIOUS INVESTIGATIONS

2.1 PHASE I PRELIMINARY SITE ASSESSMENT

In May 1994, a Phase I Preliminary Site Assessment (Phase I) was performed at the Site by Geohazard Investigations, Inc. (Geohazard, 1994). The Phase I identified containment pits and trenches containing various chemical compounds and recommended that a soil sampling program be conducted to determine if soils have been impacted outside of these structures. The Phase I also identified two adjacent facilities (Unocal and Dayton Superior Concrete Company) at which leaking underground storage tanks (USTs) had been reported.

2.2 PHASE I ENVIRONMENTAL SITE ASSESSMENT

In September 1999, a Phase I Environmental Site Assessment was performed at the Site by Dames and Moore (Dames & Moore, 1999). The Phase I discussed operations and the use of hazardous materials such as PCE at the Site, and identified numerous facilities within ½ mile of the Site with the potential to impact groundwater beneath the Site. The report also noted that the groundwater in the Site vicinity was known to be of poor quality due to the industrial use in the area.

2.3 PHASE I SITE ASSESSENT VERIFICATION INSPECTION

On March 9, 2001, the DTSC conducted a Phase I Site Assessment Verification Inspection at the Site and identified areas of potential concern (AOPC) that required further investigation, including the boiler area, the secondary containment area of the flocculation tank, the trench adjacent to the boiler area, the vapor degreaser area, and the floor channel area (DTSC, 2001).

2.4 PHASE II SUBSURFACE INVESTIGATION

Between November 2001 and February 2002, URS Corporation conducted a Phase II Subsurface Investigation at the Site, based on the results of the Phase I investigations, and in accordance with their DTSC approved workplan. The investigation assessed the possible impact to onsite soils by wastewater containing metals and/or cyanide, degreasing solvents and acids (URS, 2002). The investigation included drilling and soil sampling of 14 shallow boreholes (B1 through B9, B11, B12 and BG-1 through BG-3) to depths of 5 to 10 feet below ground surface (bgs), and drilling, soil sampling and groundwater sampling of one deep borehole (B10) to a depth of 40 feet bgs (**Figure 3**).

2.4.1 SOIL RESULTS

- All of the soil boreholes except those drilled in the employee parking, in the vacant lot east of the APC facilities, and north of the administrative offices encountered a concrete pad at a depth of 7 to 7.5 feet bgs. This concrete pad is interpreted to represent the base of a large oil production waste storage tank observed covering the facility in a 1936 aerial photograph.
- The material detected in the boreholes from ground surface to the top of the subsurface concrete pad was fill material that consistently contained hydrocarbon staining (sometimes hydrocarbon saturation) and odor.
- Total petroleum hydrocarbons (TPH) were detected in 17 of the 30 soil samples analyzed with concentrations ranging from 14 to 12,100 milligrams per kilogram (mg/kg) [**Appendix A**, **Table 3**]. Most of the samples had a wide range of hydrocarbons, generally weighted towards the higher carbon number compounds (C_{10} to C_{40}), consistent with diesel and crude oil range hydrocarbons. The hydrocarbons in the C_6 to C_{10} range, including the fuel volatile organic compounds (VOCs) presented in **Appendix B, Table 4** could represent the volatile fraction of diesel fuel. All of the hydrocarbons detected in the 20 and 30-foot depth soil samples in borehole B10 (below the concrete pad) occurred within the C_6 to C_{28} range, consistent with a diesel fuel. The petroleum hydrocarbons detected above the concrete pad are not consistent with materials used or produced at the APC facility, and probably represent pre-existing oil production facility waste in the fill material. The petroleum hydrocarbons detected in B10 below the concrete pad may represent diesel fuel that migrated through soil and/or groundwater from the nearby Unocal, Dayton, or Valvoline facilities (**Figure 2**).
- Cyanide was not detected in soil samples and all pH readings were within acceptable levels and were similar to background levels. Semi-volatile organic compounds (SVOCs) were not detected in any of the soil samples analyzed.
- The following metals were detected in soil samples: barium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, thallium, vanadium, and zinc. The concentrations detected are summarized in **Appendix C, Table 5.**

- Chlorinated solvent compounds, in particular PCE (up to 35 mg/kg) and trichloroethene (TCE – up to 4.6 mg/kg), were detected in 27 of 40 soil samples (**Appendix D, Table 2**). The areas impacted were: 1) immediately north of the vapor degreaser, 2) adjacent to the southeast corner of the wastewater treatment area, and 3) to the east of the building, in the loading and storage area. The presence of these chlorinated solvents is consistent with operations at the APC facility.
- Vinyl chloride (VC) is present in the soil above and below the subsurface concrete pad in the immediate vicinity of the soil borehole from which the groundwater grab sample from B10 was collected. VC may have formed from breakdown of TCE and PCE, or may have been disposed of as a primary waste in the large petroleum waste storage tank that occupied the property prior to APC operations.

2.4.2 GROUNDWATER

- Groundwater was detected in the deep soil borehole (B10) at a depth of 37 feet bgs.
- An undetermined thickness of light non-aqueous phase liquid (LNAPL) hydrocarbons was detected at the groundwater surface.
- VOC compounds representing typical components of petroleum hydrocarbon fuels (sec-butylbenzene [73 micrograms per liter (ug/L)], tert-butylbenzene [9.4 ug/L], isopropylbenzene [150 ug/L], n-propylbenzene [7.2 ug/L], and naphthalene [47 ug/L]), and the chlorinated solvent VC (69 ug/L) were detected in a grab groundwater sample from the deep soil borehole (B10).

Possible sources of the hydrocarbons (LNAPL and fuel VOCs) include: the former Unocal facility to the southwest of the Site and the Dayton Superior and Valvoline facilities to the northwest of the Site (**Figure 2**). The Omega Chemical facility, a United States Environmental Protection Agency (USEPA) National Priorities List (NPL) "Superfund" site, represents a possible source of chlorinated solvents and is located approximately 1.4 miles northeast of the Site (**Figure 1**). The Omega Chemical facility will be discussed in more detail in **Section 4.5**.

3 GEOLOGY AND HYDROGEOLOGY

3.1 REGIONAL GEOLOGY AND HYDROGEOLOGY

This portion of Los Angeles County is underlain by The Los Angeles County Coastal Plain and is bounded by the Santa Monica Mountains to the north, the low lying Elysian, Repetto, Merced, and Puente Hills to the northeast, a political boundary coinciding with the boundary between Los Angeles County and Orange County to the southeast, and the Pacific Ocean to the southwest. Alluvial fans formed by the Los Angeles, Rio Hondo, and San Gabriel Rivers systems have coalesced to form the Downey Plain, which represents the largest area of recent alluvial deposition in the Coastal Plain. The Downey Plain is bordered by the La Brea, Montebello, and Santa Fe Spring Plains, and the Coyote hills to the north and northeast, the Newport Inglewood uplift to the southwest, and the Coastal Plain of Orange County to the southeast (DWR, 1961). The Downey Plain slopes gently to the south with an average gradient of less than 18 feet per mile. The Site is located between the Downey Plain and the Santa Fe Springs Plain. The Santa Fe Springs Plain is located south of Whittier and east of the San Gabriel River, in the area of the City of Santa Fe Springs. The Santa Fe Springs Plain is a low, slightly rolling topographic feature and represents a continuation of the Coyote Hills Uplift to the southeast.

The Coastal Plain of Los Angeles County is a deep groundwater reservoir filled by unconsolidated alluvial sands, gravels, clays, and silts. Fresh-water aquifers extend to depths of over 2,000 feet. The California Department of Water Resources (DWR) divided the coastal plain into four groundwater basins: the Santa Monica Basin, the West Coast Basin, the Hollywood Basin, and the Central Basin (DWR, 1961). The Site lies within the Central Basin, which is further divided into four parts for descriptive purposes: the Los Angeles Forebay Area, the Montebello Forebay Area, the Whittier Area, and the Central Basin Pressure Area.

The Site is located in the Central Basin Pressure Area. The Central Basin Pressure Area is called a "pressure area" because the aquifers within it are confined by aquicludes over most of the area. The major regional aquitards and aquifers beneath the Site occur in the Recent Alluvium, the Upper Pleistocene Lakewood Formation, and the Lower Pleistocene San Pedro Formation. Depth intervals for the major regional hydro-stratigraphic units (aquitards and aquifers) in the Site vicinity are presented in the table below:

Regional Hydro-stratigraphic Unit	Formation	Approximate Depth Intervals (feet bgs)
Bellflower Aquitard	Recent Alluvium	0 – 30
Gaspur	Recent Alluvium	30 – 65
Gage	Lakewood	65 – 110
Hollydale-Jefferson	San Pedro	110 - 130
Lynwood	San Pedro	130 – 210
Silverado	San Pedro	210 – 360
Sunnyside	San Pedro	360 - 610

3.2 SITE GEOLOGY AND HYDROGEOLOGY

3.2.1 SITE GEOLOGY

The elevation of the property is approximately 150 feet above mean sea level (MSL) with a local topographic gradient of less than 20 feet per mile to the southeast. The Site is underlain with artificial fill composed primarily of silt from ground surface to an approximate depth of 7 feet bgs. At approximately 7 feet bgs a concrete pad is encountered, which is approximately four inches thick. Underlying the concrete pad is a silt and clay layer that extends to approximately 28 feet bgs. Below the silt and clay layer is a sand and gravel layer that extends to at least 40 feet bgs (**Figure 4A**). Both the silt and clay layer and the sand and gravel layer correspond to the Recent Alluvium.

3.2.2 SITE HYDROGEOLOGY

First groundwater has been detected between 35 and 40 feet bgs and corresponds to the Gaspur Aquifer. Based on groundwater elevations measured in monitoring wells associated with the WDI and the Omega Chemical Superfund site investigations (USEPA, 2002 and Weston Solutions, 2004), groundwater flow is towards the southwest at an approximate gradient of 0.0025 feet per foot (ft/ft).

3.3 SITE CONCEPTUAL MODEL

In accordance with the Site conceptual model developed below, the subsurface at the Site and Site vicinity has been divided into three operable units: Operable Unit 1 (OU-1), Operable Unit 2 (OU-1), and Operable Unit 3 (OU-3) (**Figures 4A**). OU-1 consists of fill material underlying the Site from ground surface to the top of the buried concrete pad (approximately 7 feet bgs). OU-2 consists of on-Site soils and the first groundwater zone, from the base of the concrete pad to approximately 50 feet bgs. OU-3 consists of the off-Site soils and the first groundwater zone.

Fill material in OU-1 is impacted by petroleum hydrocarbons (C_6 to C_{40}), fuel VOCs (probably representing pre-existing contamination from the former storage tank), and chlorinated solvent compounds (consistent with releases of PCE from the APC facility). The potential release mechanisms, pathways, exposure routes, and receptors are illustrated in **Figure 4B**. Potential migration pathways for the more mobile contaminants (chlorinated solvents and fuel VOCs) include volatilization to surface air, fluid (vapor or liquid) transport beyond the edge of the concrete barrier, and liquid transport through possible cracks in the buried concrete pad (**Figures 4A** and **4B**). A receptor is potentially affected if the source, release mechanism, pathway, and exposure route are feasible, as indicated by a circle on **Figure 4B**.

Soil and groundwater contaminant conditions in OU-2 are based on the single soil borehole drilled below the buried concrete pad (B10). Soil in OU-2 is impacted by petroleum hydrocarbons (C_6 to C_{28}); fuel VOCs, cis-1,2-dichloroethene (cis-1,2-DCE) and VC. LNAPL hydrocarbons are present on the groundwater surface, and fuel VOCs and VC are dissolved in groundwater. All of these constituents may have been disposed of in the former petroleum waste storage tank at the Site, and migrated downwards, impacting deeper soils and the groundwater (**Figures 3A** and **3B**). The LNAPL and the fuel VOCs are also consistent with possible migration through soil and groundwater from the nearby former Unocal and/or Dayton Superior facilities. Cis-1,2-DCE and VC are breakdown products of TCE and PCE, and may have migrated downward from the upper fill material. Based on the presence of dissolved chlorinated solvents and chloroform in groundwater samples collected just up-gradient and down-gradient of the Site (**Section 4**), there is a high potential that VOCs from off-Site sources have impacted OU-2 (on-Site) groundwater.

There are several potential sources for contamination in OU-3 (off-Site) groundwater, including all or some the following:

- Former petroleum waste storage tank on APC property (petroleum hydrocarbons and fuel VOCs);

- Valvoline, Dayton Superior and Unocal facilities (petroleum hydrocarbons, including LNAPL and fuel VOCs);
- WDI (VOCs and metals);
- APC facility (chlorinated solvents); and
- Omega Superfund site (chlorinated solvents and chloroform).

Other contaminant compounds from unknown sources have been detected in up-gradient Omega Chemical Superfund Site well MW-11A, including methyl tert-butyl ether (MTBE) and perchlorate (**Section 4**).

4 ADDITIONAL DOCUMENT REVIEW

Most of the contaminants detected in the groundwater, and in the soil in the zone of groundwater fluctuation (smear zone), are not consistent with the hazardous materials stored and used at the APC facility. Moreover, there are other contaminated sites nearby the APC facilities (e.g. Waste Disposal Inc., Tosco – formerly Unocal, Dayton Superior, Valvoline Oil Company, and Omega Chemical facility) that are potential sources of these contaminants. Therefore, records pertaining to these and other nearby contaminated sites from the following agencies were reviewed: Regional Water Quality Control Board, Los Angeles Region (LARWQCB), and USEPA.

4.1 WASTE DISPOSAL INC (WDI)

Waste Disposal Inc (WDI) is located approximately 500 feet southeast of the Site at 12731 East Los Nietos Road, Santa Fe Springs, California. WDI is a Superfund site that consists of 22 parcels of land that cover approximately 43 acres. A buried 42-million gallon reservoir (600 feet in diameter and 25 feet deep) is located in the center of the site and was used for the disposal of a variety of liquid and solid wastes.

The subsurface geology at WDI consists of 5 to 15 feet of fill material covering the concrete reservoir, underlain by a silt layer approximately 10 to 25 feet thick. Below the silt layer is at least 50 feet of interbedded sand and pebbly sand with minor lenses of clay and silt (Ebasco, 1989).

Groundwater occurs at depths of 48 to 65 feet bgs and groundwater flow is generally south-southeast, with a minor southwest component in the southwestern portion of the site. The hydraulic gradient is generally 0.003 ft/ft, but steepens to 0.035 ft/ft in the southwestern portion of the site.

The following contaminants have been detected in soil: antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, selenium, thallium, zinc, Aldrin, Lindane, Chlordane, DDT, DDD, DDE, Heptachlor, PCBs, and VOCs including pentachlorophenol, benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX), PCE, TCE and VC (USEPA, 2002). **Figure 4** in **Appendix E** depicts the lateral extent of contamination (USEPA, 2002). EPA estimates that the maximum thickness of impacted soil is 20 feet (USEPA, 2002).

Methane and VOCs including BTEX, PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and VC were detected in soil gas samples (USEPA, 2002).

Groundwater samples collected in several deep and upgradient wells contained arsenic, lead, manganese, mercury, benzene, toluene, xylene, carbon tetrachloride, chloroform, PCE, TCE and VC above the maximum contaminant levels (MCLs). However, shallow, intermediate, and downgradient wells did not contain contaminants above the MCLs (USEPA, 2002). Therefore, EPA has determined that WDI has not contributed to exceedences of groundwater MCLs (USEPA, 2002).

In 2002, the EPA recommended containment, collection, and treatment of gases, collection and removal of site liquids, long-term groundwater monitoring, and institutional controls including a cap to cover the existing reservoir and areas outside the reservoir (EPA, 2002).

Background soil samples were collected at the St. Paul's High School located directly northeast of WDI. Six soil boreholes were advanced and 12 soil samples were collected for metals analysis. The following metal concentrations were detected:

- Arsenic was detected in all samples ranging in concentration from 1.63 to 15.90 parts per million (ppm);
- Cadmium was detected in three of the 12 samples ranging in concentration from 0.26 to 0.36 ppm;
- Chromium was detected in all samples ranging in concentration from 5.90 to 51.20 ppm;
- Copper was detected in all samples ranging in concentration from 4.95 to 41.50 ppm;
- Lead was detected in all samples ranging in concentration from 1.70 to 10.00 ppm;
- Mercury was detected in six of the 12 samples ranging in concentration from 0.02 to 0.19 ppm; and
- Selenium was detected in three of the 12 samples ranging in concentration from 0.20 to 0.28 ppm.

4.2 TOSCO (FORMERLY UNOCAL)

Unocal is located directly southwest of the Site at 9645 Santa Fe Springs Road in Santa Fe Springs, California. The site lithology consists primarily of silt from the ground surface to 30 feet bgs with lenses of sand and clay. In the vicinity of the tank cavity the sand lens thickness increases to 20 feet. The silt layer is underlain by sand from 30 to 40 feet bgs followed by gravelly sand from 40 to 50 feet bgs. Groundwater is encountered between 66 to 37 feet bgs and groundwater flow is to the south-southwest with a gradient of 0.001 ft/ft (Clayton, 1997).

An unauthorized release occurred in 1989 from a gasoline UST. In July 1989 the UST was removed. TPH as gasoline (TPHg), TPH as diesel (TPHd) and BTEX were detected in soil to at least 40 feet bgs. TPHg, BTEX, MTBE, and chlorinated solvents (PCE, TCE, cis-1,2-DCE, and trans-1,2-DCE) were detected in the groundwater. Unocal stated that chlorinated solvents detected in groundwater were from upgradient sources.

An SVE system consisting of 12 wells operated on-site from 1993 to 1997, removing approximately 90,000 pounds of fuel hydrocarbons. A "No further action" letter was granted by LARWQCB in April 1998, and the wells were abandoned in June 1998.

4.3 DAYTON SUPERIOR

Dayton Superior (Dayton) is located directly west and north of the Site at 9415 South Sorensen Avenue in Santa Fe Springs, California.

The site lithology consists of sandy clay from the ground surface to 3 feet bgs, followed by clayey silt from 3 to 17 feet bgs. The silt layer is underlain by silty fine sand from 17 to 27 feet bgs followed by fine to coarse grained sand and gravel from 27 to 60 feet bgs. Groundwater occurs between 36 and 39 feet bgs and groundwater flow is to the southwest.

In 1987, two 5,000-gallon USTs containing diesel and gasoline were removed. During the excavation, TPHg, TPHd, and other light petroleum distillates were detected in soil. After the excavation, three boreholes were installed to 35 feet. Impacted soil was detected from the ground surface to 35 feet bgs and BTEX was detected in groundwater, generally at concentrations between 1 and 30 ug/L. In 1996, the Site was granted closure.

In November 2002, two 5,000-gallon USTs containing diesel and gasoline and the associated dispensers were removed. MTBE was detected in the soil beneath the gasoline UST at a concentration of 41.5 (micrograms per kilogram) ug/kg and beneath the dispenser at a concentration of 30.4 ug/kg. TPHd, TPHg, and BTEX were not detected in the soil. Groundwater was not encountered during the excavation. As of 2003, there has been no remediation at the Site. In February 2003, the LARWQCB requested more information to consider for closure or further assessment.

4.4 VALVOLINE OIL COMPANY

Valvoline Oil Company (Valvoline) is located approximately 900 feet north of the Site, at 9520 John Street in Santa Fe Springs, California. The site lithology consists of silt and fine-grained sand from the ground surface to 20 feet bgs. Sand, gravel, and silty sand occur from 20 to 53 feet bgs. The sand layer is underlain by clay and silty clay to a depth of 60 feet bgs, followed by silty sand and sand to a depth of 62 feet bgs. Groundwater occurs between 40 and 51 feet bgs and groundwater flow is reportedly to the south.

In 1987/1988, two oil USTs (4,000 and 1,000 gallons) were closed in place and one 8,000-gallon diesel UST was removed. TPHd and BTEX were detected in soil near the diesel tank. Petroleum hydrocarbons and VOCs were also detected in groundwater. The LARWQCB concluded that the chlorinated hydrocarbons detected in groundwater did not originate from the Site. After nine years (1988 to 1997) of monitoring, the LARWQCB concluded that petroleum hydrocarbon concentrations in groundwater were relatively low and stable, and therefore, granted site closure.

4.5 OMEGA CHEMICAL SUPERFUND SITE

The Omega Chemical facility (Omega) is located at 12504 and 12512 East Whittier Boulevard in Whittier, California, approximately 1.4 miles northeast (or upgradient) of APC. The facility operated as a RCRA solvent and refrigerant recycling and treatment facility, handling primarily chlorinated hydrocarbons and chlorofluorocarbons from approximately 1976 to 1991. The Omega Chemical Superfund site is divided into two operable units: OU-1 and OU-2. OU-1 includes the Omega Chemical facility property and extends a short distance west-southwest to Putnam Street. The OU-2 study area comprises the area extending approximately 1.75 miles to the southwest.

The subsurface geology at Omega consists of low permeable silt and clay with interbeds of sand to a depth of at least 120 feet bgs. Groundwater occurs at approximately 70 feet bgs. Groundwater flow is generally to the southwest at a hydraulic gradient of 0.009 ft/ft. The hydraulic conductivity in the area ranges from 0.6 to 1.6 feet per day.

VOCs, including chlorinating hydrocarbons such as PCE, TCE, cis and trans-DCE and VC, are the primary contaminants of concern in groundwater. A groundwater plume of PCE extends southwest from the Omega past APC (**Figure 11** in **Appendix F**). In August of 2002, a groundwater sample was taken in a temporary monitoring well (installed in a push-probe borehole) at a depth of 71 feet, directly down-gradient of APC at the intersection of Santa Fe

Springs Road and Los Nietos Road (Weston Solutions, 2003). VOCs detected in this sample included:

- PCE (5 ug/L);
- TCE (2 ug/L);
- 1,1-DCE (1 ug/L);
- cis 1,2-DCE (1 ug/L); and
- Chloroform (1 ug/L).

Omega monitoring wells MW-10A and MW-11A are located 800 feet upgradient of APC and are screened between 52 and 62 feet and 40 and 50 feet bgs, respectively. In August 2003, PCE was detected in wells MW-10A and MW-11A at concentrations of 27 ug/L and 12 ug/L, respectively (Weston, 2004). TCE was also detected in wells MW-10A and MW-11A at concentrations of 21 ug/L and 2.1 ug/L, respectively. These results, together with the overall geometry of the Omega Plume, indicate that APC is within the lower concentration margin of a large VOC plume emanating from up-gradient sources. These VOC concentrations constitute "background" conditions with respect to the VOCs detected.

In September 1995, over 3,000 drums and the "grossly" contaminated soils were removed from the Omega Chemical facility (OU-1). The PRPs have submitted a draft workplan for Remedial Investigation of the soils at the Omega site, and are currently drafting a design to implement groundwater containment and mass removal (yosemite.epa.gov/r9/sfund/fsheet.nsf). A site-wide remedy has not been chosen by the EPA as of December 2003.

5 SEPTEMBER 2004 FIELD INVESTIGATIONS

5.1 SOIL GAS SAMPLING AND ANALYSES

5.1.1 SAMPLING LOCATIONS

A site-wide soil gas survey (SGS) comprising 38 locations was conducted on-Site in September 2004 (**Figure 3**). The SGS was performed in accordance with "*Interim Guidance for Soil Gas Investigation*" prepared by the LARWQCB, dated February 25, 1997, and "*Advisory – Soil Gas Investigations*" prepared by DTSC and LARWQCB, dated January 28, 2003. All SGS points and soil boreholes were advanced to the top of the subsurface concrete slab, or to a maximum depth of 15 feet bgs, if the slab was missing. B-23 was designated as a soil gas sampling point and as a soil borehole. Samples were initially collected on September 7, 2004; however, they were not analyzed for TPH. Therefore, the same locations were resampled on September 9, 2004 and the soil gas investigation continued on September 13, 2004. The SGS grid was supplemented by an additional sampling point (B-43) to evaluate suspected sources of VOCs, and to further delineate VOC detections.

5.1.2 SAMPLING PROCEDURES

Soil gas samples were collected using a Geoprobe™ direct push, limited access hydraulic push-probe drill rig, or manually using a hand-held drill roto-hammer (depending on the location access). Drilling procedures for the Geoprobe™ direct push and limited access hydraulic push-probe drill rig involved adding four-foot long by two-inch outside diameter (OD) steel rods to the lead rod equipped with a sample port until the target depth was reached. The manual method involved advancing a stainless steel soil gas vapor probe to the target depth.

Soil gas samples were collected at each location at 5 feet bgs, in accordance with "*Interim Guidance for Soil Gas Investigation*" prepared by the LARWQCB, dated February 25, 1997, except at locations B-44 and B-45 where samples were collected at four feet bgs due to refusal at 5 feet. The rods were retracted approximately three inches to allow soil gas to enter the sample port. The sample port was sealed during advancement by a sacrificial tip. In addition, hydrated bentonite was used to seal around the drive rod at ground surface to prevent ambient air intrusion from occurring.

New 0.25-inch OD Teflon tubing was slipped onto the barbed end of a stainless steel fitting. The other end of the stainless steel fitting, consisting of standard threads and a O-ring gasket, was lowered down the inside of the rods to the lead rod/sample port where it was threaded to create an air tight seal.

After probe emplacement and prior to sampling, an equilibration time of 20 minutes was observed. To ensure stagnant or ambient air was removed from the sampling system and to ensure samples collected were representative of subsurface conditions, a purge volume versus contaminant concentration test was conducted. In addition to the purge test, a leak test was conducted at every soil gas probe to determine if leakage was present which could dilute the samples and produce an underestimate of actual site conditions or contaminate the sample with external contaminants. A leak test was performed by applying a cloth with 1,1-difluoroethane around the top of every soil gas location and then analyzing for that compound in the sample. 1,1-difluoroethane was detected at one location (B-6) during field activities. A second B-6 sampling location was advanced and a sample as well as a duplicate were collected from this location. 1,1-difluoroethane was not detected in either sample from the second location.

All equipment that came into contact with potentially affected material, including drill rods and the sampling port assembly, was thoroughly cleaned with a laboratory grade detergent (Alconox) and deionized water before and after each use. Upon completion of soil gas sample collection, the boreholes were grouted to the base of the ground surface or floor with hydrated granulated bentonite using the tremie method. The floor was then patched to match preexisting conditions.

5.1.3 SOIL GAS SAMPLE ANALYSES

Soil gas samples and quality assurance/quality control (QA/QC) samples were analyzed by H & P Mobile Laboratory on-Site. Based on the PCOCs listed in *Corrective Action Consent Agreement*, the *Workplan for Facility Investigation (*Komex, 2004*)*, and the general and specific DTSC comments from their letters dated April 1 and June 14, 2004 (DTSC, 2004a; DTSC, 2004b), all soil gas samples, and QA/QC samples were analyzed for the following parameters:

- TPH in accordance with USEPA Method 5030/ 8260B; and
- VOCs in accordance with USEPA Method 5035/8260B.

A detection limit of 1 ug/L was designated for all the VOCs in accordance with "*Interim Guidance for Soil Gas Investigation*" prepared by the LARWQCB, dated February 25, 1997. A detection limit for TPH was not specified in either the "*Interim Guidance for Soil Gas Investigation*" prepared by the LARWQCB, dated February 25, 1997, or the "*Advisory – Soil Gas*

Investigations" prepared by DTSC and LARWQCB, dated January 28, 2003. Therefore, the standard detection limit of 500 ug/L was utilized.

5.1.4 QUALITY CONTROL SAMPLES

Quality control samples including field (ambient) blanks, equipment blanks, and field duplicate samples, (prepared by Komex in the field), and laboratory control, method blank, matrix spike and matrix spike duplicates (prepared in the laboratory), were periodically collected or prepared. Field duplicate samples were collected at a frequency of approximately 10% of the total primary samples.

One field blank and one equipment blank were collected by Komex each sampling day. Each equipment blank was collected by sampling deionized water that was passed through a drilling rod, which was decontaminated after each borehole. Field blank samples were collected at the Site by filling the sample containers with deionized water and allowing them to remain open while the equipment blank was prepared.

A laboratory control, method blank, matrix spike and matrix spike duplicate (MS/MSD) sample were produced and analyzed by the laboratory at a frequency of one per 20 samples.

5.2 SOIL SAMPLING

5.2.1 SAMPLING LOCATIONS

Nine additional shallow soil boreholes (B-18 through B-20, B-22 through B-27) were advanced to 7 feet bgs to characterize the lateral and vertical extent of VOCs (including chlorinated solvent compounds), TPH with carbon chain distinction (TPHe), cyanide, and metals in OU-1. The nine additional shallow soil boreholes were drilled at the locations shown on **Figure 3** in order to assess contaminant conditions at the following Solid Waste Management Units (SWMUs) listed on page 3 of the *Corrective Action Consent Agreement:*

- Boiler Area (SWMU #1 – **borehole B-24**);
- Secondary containment area of the neutralization tank (SWMU #2 – **borehole B-26**);
- Open floor channel on the southern boundary of the facility (SWMU #3 - **borehole B-25**);
- Vapor degreaser area (SWMU #4 – **borehole B-24**);
- Covered floor channel inside the building (SWMU #5 – **boreholes B-18 and B-19**);
- Southern chemical storage area (SWMU #6 – **borehole B-27**);

- Central chemical storage area (SWMU #7 – **borehole B-22**);
- Stripping room area (SWMU #8 – **borehole B-23**); and
- Maintenance stockroom, west of the stripping room (SWMU #9 – **borehole B-20**).

Three soil samples for metals analyses were collected along each of the five plating lines, at depths of 1, 4, and 7 feet bgs in selected soil gas survey locations (**Figure 3**).

Three background samples were collected during the previous phase of investigation (URS, 2002). Rather than taking additional background samples at the Site, background soil sample analytical data for the adjacent WDI Superfund site and from *Background Levels of Soil Trace Elements in Southern California* (Marrett, 1992) will be compiled, analyzed, and evaluated for relevance to the APC investigation.

5.2.2 SAMPLING PROCEDURES

Soil samples were collected using a limited access hydraulic push-probe drill rig until refusal at the top of the sub-surface concrete pad (approximately 7-7.5 feet bgs). Soil samples were collected at each location at approximate depths of 1, 4, and 7 feet bgs, except at boreholes B-18 and B-19 where a 4-foot deep open trench was located. Therefore, soil samples were collected at 4 and 7 feet bgs at boreholes B-18 and B-19.

For soil sampling, a cutting shoe with a spacer ring was threaded onto the male end of the probe rod and an acetate sample liner was inserted through the opposite end of the probe rod. A drive head was then threaded onto the female end of the probe rod and attached to a drive rod. At the required sampling depth, the probe rod and cutting shoe were advanced into the undisturbed soil with a hydraulic hammer. Soil samples were collected in 1 ¾-inch diameter, 4-foot long acetate sleeves lining the inside of the probe rod, which were then cut at the desired sampling depth. The probe rod was then retrieved from the borehole, the drive head removed and the sample liner removed from the probe rod and cut into two sections, one for VOC analyses and one for TPH and metals analyses. The sample for VOC analyses was sub-cored using EnCore™ samplers immediately upon retrieval in accordance with USEPA Method 5035. The sample liner for TPH and metals analyses was sealed with Teflon tape and plastic end caps.

Soil samples were described for lithologic, hydrogeologic and geotechnical properties using the Unified Soil Classification System (USCS). All soil samples underwent initial field screening for the presence of VOCs using a photoionization detector (PID) [Photovac 2020 with a 11.7 eV lamp].

All the soil samples were placed inside a Ziploc® bag and placed on ice in an ice chest for transportation to the office and pick up by the analytical laboratory the following day. Upon completion of soil sample collection, the boreholes were grouted to the base of the floor with hydrated granular bentonite using the tremie method. The floor was then patched to match preexisting conditions.

5.2.3 SOIL SAMPLE ANALYSES

Soil samples and QA/QC samples for laboratory analyses were immediately transferred to an ice chest and delivered within 24 hours under chain-of-custody to Sierra Analytical, a California Department of Health Services (DHS) certified hazardous waste testing laboratory located in Laguna Hills, California. Based on the PCOCs listed in *Corrective Action Consent Agreement*, the *Workplan for Facility Investigation (*Komex, 2004*)*, and the general and specific DTSC comments from their letters dated April 1 and June 14, 2004 (DTSC, 2004a; DTSC, 2004b), all soil samples, and QA/QC samples were analyzed for the following parameters:

- TPH-carbon range in accordance with USEPA Method 5030/ 8015 Modified;
- VOCs in accordance with USEPA Method 5035/8260B;
- pH in accordance with USEPA Method 9040B;
- Cyanide in accordance with USEPA SW-846 Method 9010B; and
- California Administrative Manual (CAM) metals (including hexavalent chromium) using total digestion preparation and USEPA analytical Methods 6020, 7199, and 7471A.

Limited geo-technical testing was required to provide data regarding the consistency, moisture content and geotechnical parameters of the fill materials. Two selected soil samples from borehole B-3 were submitted to PTS Laboratories in Santa Fe Springs, California for the following analyses:

- Native-state air permeability in accordance with American Petroleum Institute (API) Method RP40;
- Pore fluid saturation in accordance with API RP40;
- Porosity in accordance with API RP40;
- Grain density in accordance with API RP40;
- Bulk density in accordance with API RP40;

- Moisture Content in accordance with American Society for Testing and Materials (ASTM) Method D2216;
- Grain size distribution in accordance ASTM Method D422;
- Total organic carbon and fraction organic carbon in accordance with the Walkley-Black method; and
- Hydraulic conductivity in accordance with ASTM Method D5084.

The results of these analyses will be used to evaluate contaminant fate and transport potential, as input to risk assessment equations, and to evaluate the feasibility of *in-situ* remediation options.

5.2.4 QUALITY CONTROL SAMPLES

Quality control samples including field and equipment blanks (prepared by Komex in the field), and laboratory control, method blank, matrix spike and matrix spike duplicates (prepared in the laboratory), were periodically collected or prepared. Field duplicate samples were not collected for soil samples because soil matrix, by nature, is heterogeneous and will not consistently provide repeatable results even for samples collected within centimeters of one another.

One field blank and one equipment blank were collected by Komex each sampling day. Each equipment blank was collected by sampling deionized water that was passed through a drilling rod, which was decontaminated after each borehole. Field blank samples were collected at the Site by filling the sample containers with deionized water and allowing them to remain open while the equipment blank was prepared.

Laboratory control, method blank, matrix spike and matrix spike duplicate (MS/MSD) samples were produced and analyzed by the laboratory at a frequency of one per 20 samples.

5.3 EQUIPMENT DECONTAMINATION

Equipment and sampling apparatus (including sample sleeves) that enter the subsurface or contact a sample were cleaned prior to use, unless they were pre-cleaned during manufacture and have remained in their sanitary seal or other original packaging. The purpose of equipment cleaning is to minimize the potential for cross contamination between samples during investigation activities. Equipment was cleaned in a detergent solution in water followed by rinsing in potable and distilled water.

5.4 WASTE DISPOSAL

The soil from the boreholes was placed in a Department of Transportation (DOT) approved 55-gallon drums. Komex arranged for transport and disposal of the waste at a State licensed hazardous waste disposal or recycling facility. The drum was removed from the facility on December 6, 2004 and an APC representative signed the waste manifest as generator. The waste manifest is presented in **Appendix G**. The water used for decontaminating the drilling equipment was collected by H & P, and the waste was transported and disposed of at a State licensed waste disposal facility.

6 SEPTEMBER 2004 RESULTS OF INVESTIGATION

6.1 SITE LITHOLOGY

Based on lithologic data obtained from soil boreholes (**Appendix H**) completed during this investigation, the Site lithology primarily consisted of artificial fill composed of sandy silt and clayey silt with occasional silty clay from the ground surface to an approximate depth of 7 feet bgs. At approximately 7 feet bgs a concrete pad was encountered. Petroleum hydrocarbon odors were noted in soils from borehole logs B-10 and B-18.

6.2 SOIL GAS RESULTS

6.2.1 TPH IN SOIL GAS

A summary of the TPH analytical results for the soil gas samples is presented in **Table 1**. TPH was detected in four of the 38 samples at 5 feet bgs at concentrations ranging from 560 ug/L (B-40) to 16,000 ug/L (B-39). TPH was detected in two areas of the Site: the southern portion of the main facility near plating lines one, two and four, and in the northern part of the Site in the driveway area just to the east of the facility (**Figure 5**).

In the northern part of the Site, TPH was detected near the building in borehole B-40 at a concentration of 560 ug/L. Farther to the east, TPH was detected in borehole B-39 at a concentration of 16,000 ug/L. Beneath the main facility, near line one, TPH was detected in borehole B-1 at a concentration of 710 ug/L. Near lines two and four, TPH was detected in borehole B-10 at a concentration of 580 ug/L (**Figure 5**).

6.2.2 VOCS IN SOIL GAS

A summary of VOC analytical results for the soil gas samples collected during this investigation is presented in **Table 2**. The following VOCs were detected in soil gas samples collected at 5 feet bgs during this investigation:

- 1,1-Dichloroethane (1,1-DCA), detected in one soil gas sample at a concentration of 3.2 ug/L in B-17;
- cis-1,2-DCE, detected in six soil gas samples at concentrations ranging from 1.7 ug/L in B-42 to 210 ug/L in B-1;

- Ethylbenzene, detected in three soil gas samples at concentrations ranging from 1.7 ug/L in B-46 to 1.9 ug/L in B-4 and B-10;

- PCE, detected in nine soil gas samples at concentrations ranging from 1.0 ug/L in B-43 duplicate to 110 ug/L in B-38;

- TCE, detected in three soil gas samples at concentrations ranging from 1.8 ug/L in B-40 to 54 ug/L in B-37;

- Toluene, detected in 20 soil gas samples at concentrations ranging from 1.0 ug/L in B-2 to 2.3 ug/L in B-9;

- trans-1,2-DCE, detected in five soil gas samples at concentrations ranging from 1.4 ug/L in B-40 to 16 ug/L in B-1;

- VC, detected in six soil gas samples at concentrations ranging from 2.2 ug/L in B-7 to 210 ug/L in B-17, and

- Xylenes, detected in one soil gas sample at a concentration 6.4 ug/L in B-4.

The VOCs with the highest concentrations representing the primary VOC target compounds of this investigation are PCE and its breakdown products: TCE, cis-1,2-DCE, trans-1,2-DCE, and VC. The lateral distribution of PCE and TCE are depicted on **Figure 6**. PCE and its breakdown products were primarily detected in the following areas:

- North central portion of the Site near the Site border and in the vicinity of the former PCE AST (B-37 through B-41);
- Facility inspection area (B-7 and B-9);
- Vicinity of the chiller (B-42 and B-21);
- Southeastern portion of the Site near the southern chemical storage area (B-17, B-46, and B-33); and
- Cis-1,2-DCE and trans-1,2-DCE were detected in the southwestern part of the facility near the former vapor degreaser (B-1).

PCE and breakdown products in soil gas results for each of the Site areas are discussed below:

North Central Portion of the Site near the Former PCE AST

PCE and TCE were detected at concentrations of 110 and 20 ug/L, respectively directly east of the former PCE AST (B-38). PCE, TCE, and cis-1,2-DCE were detected at concentrations of 98, 54, and 2.4 ug/L, respectively, approximately 50 feet north of the former AST (B-37). Cis-1,2-DCE was detected at concentrations of 3.4 ug/L (B-41) and 3.9 ug/L (B-40), west and northwest, respectively, of the former AST. VC was also detected northwest of the former AST at concentrations of 49 ug/L (B-39) and 2.6 ug/L (B-40).

Facility Inspection Area

PCE was detected at concentrations of 5.3 ug/L (B-7) and 2.1 ug/L (B-9) beneath the facility inspection area. VC was also detected in B-7 at a concentration of 2.2 ug/L.

Chiller Area

PCE was detected at a concentration of 14 ug/L in borehole B-21, located directly south of the chiller. Cis-1,2-DCE and VC were detected in borehole B-42, located northeast of the chiller, at concentrations of 1.7 and 38 ug/L, respectively.

Southeastern Portion of the Site near the Southern Chemical Storage Area

PCE was detected at a concentration of 26 ug/L directly west of the southern chemical storage area by the sludge dryer (B-17), and at a concentration of 9.1 ug/L directly east of the storage area (B-33). VC was detected slightly west and north of the storage area (B-17 and B-46) at concentrations of 210 and 46 ug/L, respectively.

Former Vapor Degreaser

Cis-1,2-DCE and trans-1,2-DCE were detected near the former vapor degreaser (B-1) at concentrations of 210 and 16 ug/L, respectively.

6.3 SOIL RESULTS

6.3.1 TOTAL PETROLEUM HYDROCARBONS WITH CARBON CHAIN DISTINCTION (TPHe) IN SOIL

Samples were collected from nine soil boreholes (B-18 through B-20, and B-22 through B-27) for TPHe analysis. A summary of the TPHe analytical results is presented in **Table 3**. TPHe was detected in 22 of the 25 samples at concentrations ranging from 11 mg/kg (B-22 at 1 foot bgs) to 6,385 mg/kg (B-23 at 4 feet bgs). Most of the TPHe detections had a wide carbon range, generally weighted towards the high carbon number compounds (C_{12} to C_{32}). TPHe detections were widespread; however, the higher concentrations were generally in the southern area of the Site [**Figure 7**].

6.3.2 VOCS IN SOIL

Samples were collected from nine soil boreholes (B-18 through B-20 and B-22 through B-27) for VOC analysis. A summary of VOC analytical results is presented in **Table 4**. The following VOCs were detected in soil samples collected during this investigation:

- 1,1-DCA, detected in two soil samples at concentrations ranging from 4.9 ug/kg in B-20 at four feet bgs to 5.0 ug/kg in B-24 at one foot bgs;
- 1,1-Dichloroethene (1,1-DCE), detected in one soil sample at a concentration of 6.7 ug/kg in B-24 at one foot bgs;
- cis-1,2-DCE, detected in 13 soil samples at concentrations ranging from 9.3 ug/kg in B-23 at seven feet bgs to 5,500 ug/kg in B-24 at four feet bgs;
- Cymene, detected in five soil samples at concentrations ranging from 4.1 ug/kg in B-23 at seven feet bgs to 2,400 ug/kg in B-18 at seven feet bgs;
- Ethylbenzene, detected in eight soil samples at concentrations ranging from 4.4 ug/kg in B-B-26 at four feet bgs to 7,900 ug/kg in B-18 at seven feet bgs;
- Isopropylbenzene, detected in 13 soil samples at concentrations ranging from 5.0 ug/kg in B-24 at four feet bgs to 5,100 ug/kg in B-18 at seven feet bgs;
- Naphthalene, detected in 15 soil samples at concentrations ranging from 7.2 ug/kg in B-24 at one foot bgs to 30,000 ug/kg in B-18 at seven foot bgs;
- N-propylbenzene, detected in 12 soil samples at concentrations ranging from 6.2 ug/kg in B-24 at four feet bgs to 8,100 ug/kg in B-18 at seven feet bgs;
- 2-Phenylbutane, detected in 11 soil samples at concentrations ranging from 4.4 ug/kg in B-24 at four feet bgs to 3,700 ug/kg in B-18 at seven feet bgs;

- PCE, detected in six soil samples at concentrations ranging from 71 ug/kg in B-19 at four feet bgs to 1,900 ug/kg in B-22 and B-24 at one foot bgs;
- Toluene, detected in one soil sample at a concentration of 5.6 ug/kg in B-19 at four feet bgs;
- trans-1,2-DCE, detected in 10 soil samples at concentrations ranging from 5.5 ug/kg in B-23 at one foot bgs to 400 ug/kg in B-22 at four feet bgs;
- TCE, detected in nine soil samples at concentrations ranging from 6.7 ug/kg in B-20 at four feet bgs to 1,900 ug/kg in B-24 at one foot bgs; and
- 1,2,4-Trimethylbenzene, detected in three soil samples at concentrations ranging from 18 ug/kg in B-19 at seven feet bgs to 6,700 ug/kg in B-18 at seven feet bgs.

The lateral distribution of PCE and TCE are depicted on **Figure 8**. PCE and TCE were primarily detected in the following areas:

- Near the former vapor degreaser (B-24);
- Southwest of line five along the floor channel (B-18 and B-19); and
- The outside drum storage area (B-22).

Breakdown products of PCE were also detected in the following areas:

- The southern chemical storage area (B-27); and
- The southeastern part of the facility, near the maintenance room and the cyanide destruction unit (B-20 and B-23).

The following petroleum fuel related VOCs were detected at in borehole B-18 at seven feet bgs: 1,2,4 trimethylbenzene (6,700 ug/kg), 2-Phenylbutane (3,700 ug/kg), cymene (2,400 ug/kg), ethylbenzene (7,900 ug/kg), isopropylbenzene (5,100 ug/kg), naphthalene (30,000 ug/kg), and n-propylbenzene (8,100 ug/kg).

6.3.3 METALS IN SOIL

Samples were collected from 14 soil boreholes (B-2, B-3, B-5, B-6, B-10, B-18 through B-20, B-22 through B-27) for metals analysis. A summary of metal analytical results for the 40 samples collected is presented in **Table 5**. The following metals were detected in soil samples collected during this investigation:

- Antimony, detected in one soil sample at a concentration of 0.96 mg/kg in B-22 at one foot bgs;
- Arsenic, detected in 40 soil samples at concentrations ranging from 4.6 mg/kg in B-2 at one foot bgs to 27 mg/kg in B-5 at seven feet bgs;
- Barium, detected in 40 soil samples at concentrations ranging from 44 mg/kg in B-2 at one foot bgs to 230 mg/kg in B-27 at one foot bgs;
- Cadmium, detected in detected in two soil samples at concentrations ranging from 1.5 mg/kg in B-19 at four feet bgs to 4.4 mg/kg in B-3 at one foot bgs;
- Total chromium, detected in 40 soil samples at concentrations ranging from 14 mg/kg in B-2 at one foot bgs to 36 mg/kg in B-25 at four feet bgs;
- Hexavalent chromium, detected in two soil samples at concentrations ranging from 0.51 mg/kg in B-18 at seven feet bgs to 9.5 mg/kg in B-3 at one foot bgs;
- Cobalt, detected in 40 soil samples at concentrations ranging from 5.3 mg/kg in B-10 at one foot bgs to 32 mg/kg in B-5 at one foot bgs;
- Copper, detected in 40 soil samples at concentrations ranging from 22 mg/kg in B-10 at seven feet bgs to 270 mg/kg in B-19 at four feet bgs;
- Lead, detected in 40 soil samples at concentrations ranging from 3.9 mg/kg in B-2 at one foot bgs to 16 mg/kg in B-23 at one feet bgs;
- Nickel, detected in 40 soil samples at concentrations ranging from 18 mg/kg in B-27 at four feet bgs to 460 mg/kg in B-2 at one foot bgs;
- Vanadium, detected in 40 soil samples at concentrations ranging from 32 mg/kg in B-2 at one-foot bgs to 67 mg/kg in B-25 at four feet bgs; and
- Zinc, detected in 40 soil samples at concentrations ranging from 36 mg/kg in B-2 at one-foot bgs to 130 mg/kg in borehole B-19 at four feet bgs.

In general, copper and nickel were the metals detected at the highest concentrations. The lateral and vertical distribution of copper and nickel are depicted on **Figures 9 and 10**. Elevated levels of copper and nickel were detected underneath the main facility near lines one and five (B-2 and B-19). Copper and nickel were detected in soil near line one at 1-foot bgs from borehole B-2 at concentrations of 260 mg/kg and 460 mg/kg, respectively. At 4 feet bgs in the same borehole, nickel was detected at 170 mg/kg and copper was detected at a much lower concentration of 30 mg/kg. At 7 feet bgs in borehole B-2, both copper and nickel were detected at concentrations less than 32 mg/kg.

Beneath the trench near line five, copper and nickel were both detected in borehole B-19 at 4 feet bgs at a concentration of 270 mg/kg. At 7 feet bgs in the same borehole, copper and nickel were detected at concentrations less than 30 mg/kg.

Concentrations of nickel and copper in soil samples from boreholes near lines two through four, the wastewater treatment area, the chemical storage areas, and the cyanide destruction unit were less than 30 mg/kg and 69 mg/kg, respectively.

6.3.4 CYANIDE IN SOIL

A summary of cyanide analytical results for the soil samples is presented in **Table 5**. Cyanide was not detected in the soil samples submitted for laboratory analysis. The laboratory reporting limit for cyanide was 2.5 mg/kg.

6.3.5 PH IN SOIL

pH in soil values from 4.2 to 11.9 (**Table 5)**. pH in most of the soil samples ranged from 6.6 to 7.7. The lowest pH (4.2) was detected in soil from borehole B-2 at 1-foot bgs located within the main facility. The highest pHs (9.8, 9.9, and 11.9) were detected in soil from boreholes B-5 at 1-foot bgs, B-19 at 4 feet bgs, and B-3 at 1-foot bgs, respectively, located within the main facility.

6.3.6 GEOTECHNICAL PARAMETERS

Two soil samples were collected from borehole B-3 for geotechnical analysis. The soil physical properties and the grain size distribution are depicted in **Tables 6** and **7**, respectively. The sample collected at 1-foot bgs is classified as a silt with some fine sand and clay and the sample collected at 7 feet bgs is classified as a sandy silt with some clay according to USCS classification. The bulk density for both samples is 1.76 grams per cubic centimeters (g/cc) and the total porosity was approximately 35%. The moisture content for the sample collected at 1-foot and 7 feet bgs is 12.9% and 15.6%, respectively. The effective permeability to air for the sample collected at 1-foot bgs is 80.3 millidarcies and the effective permeability to air for the sample collected at 7 feet bgs is 0.88 millidarcies. The sample collected at 7 feet bgs has a lower effective permeability to air due to the higher moisture content. The effective hydraulic conductivity for both samples is approximately 2 x 10^{-7} centimeters per second (cm/sec).

6.4 QUALITY ASSURANCE/QUALITY CONTROL SAMPLE RESULTS

Laboratory QA/QC samples for soil gas were all within the acceptable levels. Soil laboratory QA/QC samples for VOCs, TPHe, and cyanide analyses were all within the acceptable levels.

Soil laboratory QA/QC samples for metals analysis were generally within acceptable levels; however there were a few exceptions. Vanadium was initially detected in soil samples at concentrations generally greater than 1,000 mg/kg; however, it was noticed that the lab QA/QC matrix spike sample overestimated the amount of vanadium. Lab research found that the primary spectrum used to analyze vanadium according to USEPA Method 6020 would have a matrix interference if chloride was present in the soil. Two soil samples were analyzed for chloride and concentrations ranged from 1,800 mg/kg to 5,120 mg/kg (**Table 5**). A secondary spectrum for vanadium analysis, that was not prone to matrix interference with chloride, was used. All samples were reanalyzed for vanadium and results ranged from 32 to 67 mg/kg. The QA/QC matrix spike analysis accurately measured the amount of vanadium in the soil. In addition, vanadium was also analyzed according to USEPA Method 6010 for soil from borehole B-20 at 7 feet and the result was comparable with the result from USEPA Method 6020.

One silver QA/QC matrix spike was below the acceptable level. However, the QA/QC blank, laboratory control sample, and the matrix spike duplicate were all within the acceptable levels. According to laboratory preparation manuals, QA/QC spike samples for silver can be problematic due to silver's low solubility in the presence of excess hydrochloric acid used in the preparation procedures. Regular samples (not spiked) generally do not a problem with silver solubility due to the presence of silicates in soil that effectively buffer the silver against the hydrochloric acid. Therefore, the problem in the silver QA/QC matrix spike probably does not have an effect on the sample results.

One barium matrix spike duplicate was slightly above the acceptable level. However, the laboratory accepted the QA/QC analysis for barium since the blank sample, the laboratory control sample, and the matrix spike sample were all within acceptable levels. One mercury matrix spike and matrix spike duplicate were slightly above the acceptable levels. However, the laboratory accepted the QA/QC analysis for mercury since the blank sample and the laboratory control sample were all within acceptable levels.

A few hexavalent chromium matrix spike samples were below acceptable levels; however, the QA/QC results were generally acceptable since the blank samples and the laboratory control samples were always within acceptable levels.

A summary of the field QA/QC sample results for the analysis of cyanide, VOCs, TPH, and metals is presented in **Table 8.** Cyanide, VOCs and TPH were not detected in any of the field or equipment blanks.

Metals were not detected in any of the field blanks. Barium, copper, nickel, vanadium, and zinc were detected in the equipment blank collected on September 7, 2004. The highest metal concentration detected in the equipment blank was 0.019 mg/L for copper and nickel, and the lowest metal detected in soil samples was 18 mg/kg (nickel). The metal concentrations detected in the equipment blank are therefore, insignificant compared to the metal concentrations detected in soil samples. On September 8, 2004, nickel was detected at a concentration of 0.0016 mg/L in the equipment blank which is insignificant compared to the nickel concentrations detected in soil samples. Metals were not detected in the equipment blanks collected on September 9 and 13, 2004.

7 DISCUSSION

The combined results from the URS investigation conducted in November 2001 and February 2002 (herein referred to as the 2001/2002 investigation) and the Komex investigation conducted in September 2004 (herein referred to as the 2004 investigation) are summarized and discussed below. Since both Komex and URS designated soil boreholes with a B followed by a number, boreholes advanced by Komex will have a dash in between the letter B and the number (e.g. B-5) and boreholes advanced by URS will not have a dash in between (e.g. B5).

7.1 ENVIRONMENTAL SCREENING LEVELS FOR SOIL GAS, SOIL, AND GROUNDWATER

For purposes of this investigation, the California Regional Water Quality Control Board publication, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables* (RWQCB, 2003) and the EPA Preliminary Remediation Goals (PRGs) were compared with chemical concentrations detected in soil, soil gas, and groundwater samples collected at the Site. The RWQCB document is a technical report, which presents lookup tables of conservative Environmental Screening Levels (ESLs, previously referred to as "Risk-Based Screening Levels or RBSLs") of over 100 chemicals commonly found at sites with contaminated soil and groundwater.

This document was prepared by staff of the RWQCB and is intended to help expedite the preparation of environmental risk assessments at sites where impacted soils and groundwater have been identified. Although information provided in the document is not intended to establish policy or regulation, it provides an indication of the concentration of chemicals that would pose a risk.

The RWQCB document is divided into separate lookup tables of soil, soil gas, and groundwater ESLs, based on contamination depth, and whether or not groundwater is a current or potential source of drinking water. For purposes of this investigation, Summary Table B (ESLs for Shallow Soils [less than or equal to 3 meters bgs] and Groundwater, and Table E (ESLs for Indoor Air and Soil Gas) were used as ESLs. The soil gas ESLs are intended for soil gas data collected less than 5 feet below a building foundation or the ground surface. Since soil gas data was collected at 5 feet bgs, the ESLs will be slightly conservative (low) for the data collected.

The soil ESLs are generally much lower than PRGs because the PRGs are primarily intended to address direct human exposure to impacted soil and do not consider impact to groundwater (USEPA, 2002b).

7.2 TPHg IN SOIL GAS

Soil gas samples were collected at 38 locations across the Site for TPHg soil gas analysis. TPHg was detected in four of the 38 samples collected at 5 feet bgs, at concentrations ranging from 560 ug/L to 16,000 ug/L (B-39). The soil gas ESL for commercial/industrial areas is 29 ug/L. The method detection limit (MDL) for TPHg (500 ug/L) is greater than the ESL. Therefore, even if TPHg is not detected, it is unknown if the ESL is exceeded (**Table 5**). TPHg was detected above the MDL beneath the main facility near lines one, two, and four, and beneath the northern portion of Site just to the east of the facility. TPHg in soil gas results for each of these Site areas is discussed below:

<u>Lines one, two, and four</u>

TPHg was detected at a concentration of 710 ug/L (B-1) near line one and at a concentration of 580 ug/L (B-10) near lines two and four. The lateral distribution of TPHg beneath the facility is fully delineated as indicated in **Figure 5**.

<u>Northern Portion of the Site</u>

TPHg was detected at concentrations of 560 ug/L (B-40) and 16,000 ug/L (B-39) east of the facility. The lateral distribution of TPHg is delineated to the east, south, and west, as depicted in **Figure 5**. To the north, the TPHg plume borders the Site boundary and its extent is unknown.

The petroleum hydrocarbons detected above the concrete pad are not consistent with materials used or produced at the APC facility, and probably represent pre-existing oil production facility waste in the fill material or fuel that has migrated through the soil and/or groundwater from the Site to the north.

7.3 VOCS IN SOIL GAS

Soil gas samples were collected at 38 locations across the Site for VOC analysis. VOCs were detected in 28 of the 38 samples collected at 5 feet bgs. PCE, TCE, cis-1,2-DCE, and VC were detected above the soil gas ESL for commercial/industrial areas in some of the samples. The soil gas ESL for the VOCs mentioned previously are as follows (RWQCB, 2003):

- PCE – 1.4 ug/L
- TCE – 4.1 ug/L
- Cis 1,2-DCE – 20 ug/L
- VC – 0.1 ug/L

The method detection limit (MDL) for VC (1.0 ug/L) is greater than the ESL. Therefore, even if VC is not detected, it is unknown if the ESL is exceeded (**Table 2**). ESLs for all but six of the VOCs tested for are provided in **Table 2**.

7.3.1 PCE, TCE, cis 1,2-DCE AND VC IN SOIL GAS

PCE, TCE, and cis-1,2-DCE were detected above the soil gas ESLs, and VC was detected above the MDL in the following areas: northern part of the Site near the former PCE AST, the inspection area, vicinity of the chiller, former vapor degreaser, and southern chemical storage area.

7.3.1.1 Northern Part of the Site near the Former PCE AST

PCE and TCE were detected above the soil gas ESLs, and VC was detected above the MDL near the former AST and to the north. PCE and TCE were detected above the ESLs in soil gas collected from B-38, located directly to the east of the AST at concentrations of 110 and 20 ug/L, respectively. PCE and TCE were also detected above the ESLs in soil gas collected from B-37, located approximately 50 feet north of the AST at concentrations of 98 and 54 ug/L, respectively. VC was detected above the MDL in soil gas collected from B-39 and B-40, located approximately 75 feet northeast of the former AST, at concentrations of 49 and 2.6 ug/L respectively. The presence of these chlorinated solvents is consistent with former operations at the APC facility. PCE is laterally delineated to the east, south, and west, as depicted on **Figure 6**. VC is also laterally delineated to the east, south, and west. PCE and VC are present near the northern boundary of the Site and their extent beyond the Site boundary is unknown.

7.3.1.2 The Facility Inspection Area

PCE was detected above the soil gas ESLs and VC was detected above the MDL beneath the facility inspection area. PCE was detected above the ESLs in soil gas collected from B-7 and B-9 at concentrations of 5.3 and 2.1 ug/L, respectively. VC was detected above the MDL in soil gas collected from B-7 at a concentration of 2.2 ug/L. The presence of these chlorinated solvents is consistent with former operations at the APC facility. PCE is laterally delineated by non-detections in B-6, B-44, B-8, B-40, B-41, and B-28, as depicted on **Figure 6**. VC is laterally delineated by non-detections in B-44, B-8, B-9, B-28, and B-6.

7.3.1.3 Vicinity of the Chiller

PCE was detected above the soil gas ESL and VC was detected above the MDL in the vicinity of the chiller. PCE was detected above the ESL in soil gas collected from B-21 located directly south of the chiller. VC was detected above the MDL in soil gas collected from B-42 at a concentration of 38 ug/L. The presence of these chlorinated solvents is consistent with former operations at the APC facility. PCE is laterally delineated by non-detections in B-23, B-10, B-28, B-42, and B-43, as depicted on **Figure 6**. VC is laterally delineated by non-detections in B-21, B-28, B-41, B-34, and B-43.

7.3.1.4 Former Vapor Degreaser

Cis-1,2-DCE was detected above the soil gas ESL near the former vapor degreaser at a concentration of 210 ug/L. The presence of chlorinated solvents is consistent with former operations at the APC facility. Cis-1,2-DCE is laterally delineated by non-detections in B-14, B-15, B-2, B-3, and B-10.

7.3.1.5 Southern Chemical Storage Area

PCE was detected above the soil gas ESL and VC was detected above the MDL near the southern chemical storage area. PCE was detected above the ESL and VC was detected above the MDL in soil gas collected beneath the sludge dryer (B-17) along the western side of the chemical storage area at concentrations of 26 and 210 ug/L, respectively. PCE was detected above the ESL in soil gas collected in B-33 along the eastern border of the chemical storage area at a concentration of 9.1 ug/L. The presence of these chlorinated solvents is consistent with former operations at the APC facility. PCE is laterally delineated by non-detections in B-31, B-30, B-46, B-23, and B-16, as depicted on **Figure 6**. VC is laterally delineated by non-detections in B-33, B-30, B-43, B-23, and B-16.

7.4 TOTAL PETROLEUM HYDROCARBONS WITH CARBON CHAIN DISTINCTION (TPHe) IN SOIL

A total of 22 soil boreholes were advanced for TPHe analysis: 13 boreholes during the 2001/2002 investigation and nine during the 2004 investigation. The boreholes were mostly advanced in the southern part of the Site, in the following areas: the wastewater treatment area, the southernmost chemical storage area, the maintenance stockroom, and plating lines one, two, and four. Several "background" boreholes were advanced during the 2001/2002 investigation in the employee parking area, the adjacent vacant land, and directly south of Ann Street near the administrative offices (**Figure 11**).

TPHe was detected in 21 of the 22 soil boreholes and in 39 of the 55 soil samples submitted for laboratory analysis, with a maximum concentration of 12,100 mg/kg (borehole B5). The RWQCB soil ESL for TPH (middle distillates) and TPH (residual fuels) at residential/industrial sites where groundwater is not a current or potential source of drinking water is 500 mg/kg and 1000 mg/kg, respectively (RWQCB, 2003). A PRG was not listed for TPH.

Boreholes were generally advanced to the concrete pad at approximately 7 feet bgs in the wastewater treatment area, the chemical storage areas, and the main facility. TPHe was generally detected throughout the sample depths of both investigations: 0.5, 1, 3, 4, 5, and 7 feet bgs. TPHe occurrence was fairly widespread (**Figure 11**). The highest TPHe concentrations (between 3,000 and 12,000 mg/kg) were generally detected along the southern border of the property and the southern part of the building (B5, B6, B8, B9, B-23 and B-24). Beneath the center of the building the TPHe concentrations were generally less than 500 mg/kg (B-18 and B-19). TPHe was not detected above the MDL north of the building (BG-1). The lateral extent of TPHe at 4 and 5 feet bgs is depicted in **Figure 12**. TPHe is generally delineated to the north, east, and west. The extent of TPHe to the south is unknown, since concentrations generally increase near the southern border of the Site. The increase in TPHe near the southern border may be due to contamination from Unocal.

In the southeastern part of the Site, near the stripping department, borehole B10 was advanced through the concrete pad to 37 feet bgs. Soil samples were collected at 10, 20, and 30 feet bgs. TPHe was detected above soil screening levels at 20 and 30 feet bgs at concentrations of 840 mg/kg and 2,270 mg/kg, respectively. Therefore, TPHe extends vertically throughout the vadose zone at least at this location. In the employee parking and vacant land area, boreholes BG-2 and BG-3 were advanced to 9 and 10 feet bgs, respectively. Soil samples were collected at 0.5, 5, and 9 to 10 feet bgs. The TPHe concentrations were generally less than 100 mg/kg, until a depth of 9 and 10 ft bgs where concentrations increased to a maximum of 3,803 mg/kg.

Most of the samples from both the 2001/2002 and 2004 investigations had a wide range of hydrocarbons, which were generally weighted towards the higher carbon number compounds

(C_{10} to C_{40}), consistent with diesel and crude oil range hydrocarbons. The hydrocarbons in the C_6 to C_{12} range could represent the volatile fraction of diesel fuel.

The petroleum hydrocarbons detected above and below the concrete pad are not consistent with materials used or produced at the APC facility, and probably represent pre-existing oil production facility waste in the fill material, or diesel fuel that migrated through soil and/or groundwater from the nearby Unocal, Dayton, or Valvoline facilities (**Figure 2**).

7.5 VOCS IN SOIL

A total of 24 soil boreholes were advanced for VOC analysis: 15 boreholes during the 2001/2002 investigation and nine during the 2004 investigation. The boreholes were mostly advanced in the southern and southeastern part of the Site, in the following areas: the wastewater treatment area, the chemical storage areas, and the main facility maintenance stockroom and lines one, two, four, and five. Several "background" boreholes were advanced during the 2001/2002 investigation in the employee parking area, the adjacent vacant land, and directly south of Ann Street near the administrative offices.

VOCs were detected in 15 of the 24 soil boreholes and in 55 of the 65 soil samples submitted for laboratory analyses. Concentrations of PCE and naphthalene were detected above the EPA PRGs of 1,300 and 4,200 ug/kg, respectively. Concentrations of PCE, TCE, cis-1,-2 DCE, and naphthalene were detected above the soil ESLs in some of these samples. The soil ESLs for the VOCs mentioned previously at commercial/industrial sites where groundwater is not a current or potential source of drinking water, are as follows (RWQCB, 2003):

- PCE – 250 ug/kg;
- TCE – 730 ug/kg;
- Cis-1,2-DCE – 3,600 ug/kg; and
- Naphthalene – 4,800 ug/kg.

PCE and TCE concentrations in soil are depicted in **Figure 13**. The lateral distribution of PCE at 4 and 5 feet bgs is depicted in **Figure 14**.

7.5.1 PCE, TCE AND cis-1,2-DCE IN SOIL

PCE was detected above the soil ESL and the industrial PRG in the following areas: the former vapor degreaser location (B-24 and B6), the central chemical storage areas (B-22), the wastewater treatment area near the batch neutralization tanks and the stripping department (B1 and B2) [**Figure 13**]. PCE was detected below the industrial PRG but above the soil ESL beneath the southern chemical storage area (B-9). TCE was detected below the industrial PRG but above the soil ESL in the following areas: the former vapor degreaser location (B-24 and B6), the southern chemical storage area (B9), the wastewater treatment area near the batch neutralization tanks and the stripping department (B1 and B2). Cis-1,2-DCE was detected above the soil ESL, but below the industrial PRG (150,000 ug/kg) near the former vapor degreaser (B-24).

7.5.1.1 Former Vapor Degreaser

PCE and TCE were detected above the soil ESLs at 1 and 5 feet bgs near the former vapor degreaser (B-24 and B6, respectively). PCE and TCE were both detected in soil collected from borehole B-24 at 1-foot bgs at a concentration of 1,900 ug/kg. The PCE concentration is above the PRG of 1,300 ug/kg; however, TCE was detected below the PRG of 6,500 mg/kg. PCE and TCE were not detected above the ESL at depths below 1 foot in borehole B-24. Cis-1,2-DCE was detected below the industrial PRG but above the soil ESL at a concentration of 5,500 ug/kg from soil collected at 4 feet bgs from borehole B-24. Cis-1,2-DCE was detected below the soil ESL at 1 and 7 feet bgs in borehole B-24.

PCE and TCE were detected in soil collected from borehole B6 at a depth of 5 feet bgs at concentrations of 2,600 ug/kg and 4,600 ug/kg, respectively. PCE and TCE concentrations in soil samples collected 25 feet from the former vapor degreaser were all less than the soil ESLs for PCE and TCE. The presence of these chlorinated solvents is consistent with former operations at the APC facility.

7.5.1.2 Chemical Storage Areas

PCE and TCE were detected below the industrial PRG but above the soil ESLs in the western part of the southern chemical storage area (B9). PCE and TCE were detected at concentrations of 1,100 ug/kg and 2,200 ug/kg, respectively in soil samples collected at 0.5 feet bgs (B9). PCE and TCE were not detected above the MDLs in soil collected at 5 feet bgs in borehole B9. PCE and TCE were not detected above the MDLs in soil collected beneath the eastern part of the southern chemical storage area (B-27, located approximately 20 feet east of borehole B9).

PCE was detected above the industrial PRG and the ESL in the central chemical storage area (B-22) at a concentration of 1,900 ug/kg at 1-foot bgs. PCE was not detected above the soil ESL in soil collected at 4 or 7 feet bgs in the same borehole. PCE was also detected above the soil ESL, approximately 12 feet northwest of the chemical storage area (B12). PCE was detected at a concentration of 440 ug/kg in soil collected at 0.5 feet bgs from borehole B12. PCE was not detected above the MDL in soil collected at 5 and 7 feet bgs in the same borehole. The presence of these chlorinated solvents is consistent with former operations at the APC facility.

7.5.1.3 Batch Neutralization Tanks and Stripping Department

PCE and TCE were detected above the soil ESLs east of the batch neutralization tanks and southeast of the stripping department (B1 and B2). PCE and TCE were detected at concentrations of 35,000 ug/kg and 1,500 ug/kg, respectively in borehole B1 at 0.5 feet bgs. The PCE concentration is also above the industrial PRG; however, PCE and TCE were not detected above the MDLs in soil collected at 5 feet bgs in the same borehole. PCE and TCE were detected at concentrations of 4,100 ug/kg and 2,800 ug/kg, respectively in borehole B2 at 0.5 feet bgs. PCE and TCE were not detected above the soil ESLs in soil collected at 5 feet bgs in the same borehole. PCE was not detected above the MDL in soil collected at boreholes B3, B10, B-20, and B-26, all located within 25 feet of boreholes B1 and B2. The presence of these chlorinated solvents is consistent with former operations at the APC facility.

7.5.2 NAPHTHALENE IN SOIL

Naphthalene was detected above the soil ESL and the California (CA) modified PRG (4,200 ug/kg) in the main facility beneath the floor channel (B-18). Naphthalene was detected at a concentration of 30,000 ug/kg at 7 feet bgs in borehole B-18. Naphthalene was not detected above the soil ESL in soil collected beneath the floor channel in nearby borehole B-19. Naphthalene is a typical component of petroleum middle distillates and crude oil, and probably represents pre-existing oil production facility waste in the fill material.

7.6 VOCS IN GROUNDWATER

Borehole B10 was advanced to 37 feet bgs to collect a groundwater sample for VOC analysis during the 2001/2002 investigation. In 2004, no groundwater samples were collected. Concentrations of naphthalene and VC were detected above the groundwater ESLs. The groundwater screening levels for these compounds at commercial/industrial sites where groundwater is not a current or potential source of drinking water are as follows (RWQCB, 2003):

- Naphthalene – 24 ug/L; and
- VC – 4 ug/L;

Naphthalene and VC were detected at concentrations of 47 ug/L and 69 ug/L, respectively. The CA MCL for VC is 0.5 ug/L. Both of these constituents may have been disposed of in the former petroleum waste storage tank at the Site, and migrated downwards, impacting the groundwater. Based on the presence of dissolved chlorinated solvents in groundwater samples collected just upgradient and downgradient of the Site, there is a high potential that PCE and its breakdown products may have impacted groundwater beneath the Site from off-Site sources. Naphthalene may have migrated to beneath the Site through soil and groundwater from the nearby former Unocal and/or Dayton Superior facilities.

7.7 METALS IN SOIL

A total of 23 boreholes were sampled for metals analysis: nine boreholes during the 2001/2002 investigation and 14 boreholes during the 2004 investigation. The boreholes were mostly advanced in the southern and southeastern part of the Site in the following areas: the wastewater treatment area, the chemical storage areas, and the main facility maintenance stockroom and lines one, two, four, and five. Several "background" boreholes were advanced during the 2001/2002 investigation in the employee parking area, the adjacent vacant land, and directly south of Ann Street near the administrative offices.

Metals were detected in all 23 soil boreholes and in all 60 soil samples submitted for laboratory analysis (**Table 5**). Concentrations of arsenic were detected above the cancer industrial PRG of 0.25 mg/kg. Concentrations of arsenic, hexavalent chromium, copper, and nickel were detected above the soil ESLs in some of these samples (**Table 5**). The soil ESLs for the metals mentioned previously at residential and industrial sites where groundwater is not a current or potential source of drinking water are as follows (RWQCB, 2003):

- Arsenic – 5.5 mg/kg;
- Copper – 230 mg/kg;
- Nickel – 150 mg/kg; and
- Hexavalent chromium – 1.8 mg/kg.

Arsenic was not detected above the detection limit of 5 mg/kg during the 2001/2002 investigation. During the 2004 investigation, arsenic was detected in all 40 soil samples, with levels generally above 5.5 mg/kg, ranging from 4.6 to 27 mg/kg throughout the Site. However, arsenic occurs naturally in soils throughout southern California and this concentration range is typical of background conditions (Marrett, 1992). Marrett et al. collected 253 background soil samples in agricultural and undeveloped urban sites in the eastern and southern Los Angeles area (Marrett, 1992). Arsenic concentrations in the 253 soil samples ranged from 1 to 61.1 mg/kg (**Table 5**). Marrett et al. also did a study of pristine desert soil samples in southern California and found arsenic concentrations ranged from 2 to 30.6 mg/kg (**Table 5**). In addition, background soil samples collected at the St. Paul's High School, adjacent to the WDI site (approximately 500 feet southeast of the Site) had arsenic concentrations that ranged from 1.63 to 15.90 mg/kg (**Table 5**). All arsenic detections exceeded the PRG of 0.25 mg/kg. Therefore, due to the widespread detection of arsenic at the Site above the soil ESL and the PRG, and similar background arsenic concentrations from several areas, the arsenic concentrations detected at the Site represent naturally occurring background levels.

Copper was detected in all of the 60 soil samples submitted for laboratory analysis, with a maximum concentration of 270 mg/kg (borehole B-19 at four feet bgs). Two of the 40 soil samples submitted for laboratory analysis contained copper above the soil ESL of 230 mg/kg. The copper soil concentrations are well below the residential and industrial PRGs of 3,100 and 41,000 mg/kg, respectively. Background concentrations of copper according to Merritt et al., ranged from 3.8 to 82 mg/kg in southern California and 8.4 to 258 mg/kg in pristine desert soils (Merritt, 1992 and 1991). Background concentrations of copper collected at the St. Paul's High School ranged from 4.95 to 41.50 mg/kg (Ebasco, 1989). Other than the few elevated soil copper concentrations discussed below, copper concentrations in soil at the Site were generally within background levels.

Nickel was detected in all of the 60 soil samples submitted for laboratory analysis, with a maximum concentration of 460 mg/kg (borehole B-2 at 1-foot bgs). Three of the 40 soil samples submitted for laboratory analysis contained nickel above the soil ESL of 150 mg/kg. The nickel soil concentrations are well below the residential and industrial PRGs of 1,600 and 20,000 mg/kg, respectively. Background concentrations of nickel according to Merritt et al., ranged from 3.5 to 28.2 mg/kg in southern California and 7.2 to 25.1 mg/kg in pristine desert soils (Merritt, 1992 and 1991). Soil samples at the St. Paul's High School were not analyzed for nickel (Ebasco, 1989). Other than the few elevated soil nickel concentrations discussed below, nickel concentrations in soil at the Site were generally within background levels.

The concentrations of copper and nickel in soil above the soil ESLs were encountered beneath the main facility near line one and beneath the floor channel near line five (B-2 and B-19). Copper and nickel were detected near line one at 1-foot bgs in borehole B-2 at concentrations of 260 mg/kg and 460 mg/kg, respectively. At 4 feet bgs in the same borehole, nickel was detected at a concentration of 170 mg/kg and copper was detected at a much lower concentration of 30 mg/kg. At 7 feet bgs in borehole B-2, both copper and nickel were detected at concentrations less than 32 mg/kg. Beneath the floor channel, near line five, copper and nickel were both detected at a concentration of 270 mg/kg at four feet bgs in borehole B-19. At 7 feet bgs in the same borehole, copper and nickel were detected at concentrations less than 30 mg/kg. Elevated copper was also detected in borehole B8 at a concentration of 130 mg/kg at 0.5 feet bgs, though the concentration is below the soil ESL. Borehole B8 is located near the line one (**Figure 9**). The presence of copper and nickel is consistent with operations at the APC facility.

Soil samples were not analyzed for hexavalent chromium during the 2001/2002 investigation. During the 2004 investigation, hexavalent chromium was detected in two of the 40 soil samples submitted for laboratory analysis, with a maximum concentration of 9.5 mg/kg (B-3 at one-foot bgs). Hexavalent chromium was detected above the soil ESL at 1-foot bgs in one sample beneath the main facility near lines one and two (9.5 mg/kg at B-3). Hexavalent chromium was not detected above the MDL of 0.5 mg/kg in soil samples collected from the same borehole at 4 and 7 feet bgs. The hexavalent chromium detection is below both the industrial and residential PRGs of 64 and 30 mg/kg, respectively. Background levels of hexavalent chromium were not available for the WDI site or from Merritt et al. The hexavalent chromium is consistent with a small anti-corrosion dip used only near line two.

All other soil metal concentrations were similar to background levels measured for the St. Paul's High School or by Marrett et al.

7.8 CYANIDE IN SOIL

A total of 16 boreholes were advanced for cyanide analysis: two boreholes during the 2001/2002 investigation and 14 boreholes during the 2004 investigation. Cyanide was not detected in soil during both investigations.

7.9 PH IN SOIL

A total of 23 boreholes were advanced for pH analysis: 10 boreholes during the 2001/2002 investigation and 13 boreholes during the 2004 investigation. The soil pH values ranged from 4.2 to 11.9. Most of the soil sample pH values ranged from 6.6 to 8.1. Several low and high soil pH values were detected beneath the main facility. A low pH of 4.2 was detected in soil near line one at 1-foot bgs (B-2) and was associated with high copper (260 mg/kg) and nickel (460 ug/kg) values. High pH values of 9.8, 9.9, and 11.9 were detected near lines two through five at 1 and 4 feet bgs (B-5, B-19 and B-3, respectively).

7.10 SVOCS IN SOIL

SVOCs were not detected in soil during the 2001/2002 investigation. Soil samples were not analyzed for SVOCs during the 2004 investigation.

8 CONCLUSIONS

8.1 TPH

Elevated concentrations of TPHg in soil gas were detected beneath the southern part of the main facility (lines one, two, and four) and in the northern part of the Site just east of the building by the driveway. TPHg in soil gas is laterally delineated beneath the facility, as depicted in **Figure 5**. In the northern part of the Site, TPHg is laterally delineated to the east, south, and west, as depicted in **Figure 5**. The TPHg plume extends and unknown distance beyond the northern Site boundary.

TPHe in soil was fairly widespread beneath the Site, with the highest concentrations generally detected along the southern border (**Figure 7**). The hydrocarbons were generally weighted towards the higher carbon number compounds (C_{10} to C_{40}), consistent with diesel and crude oil. TPHe in soil is generally delineated to the north, east, and west (**Figure 12**). TPHe concentrations generally increase near the southern border of the Site, and extend an unknown distance beyond the southern boundary. The petroleum hydrocarbons detected above and below the concrete pad are not consistent with materials used or produced at the APC facility, and probably represent pre-existing oil production facility waste in the fill material or diesel and gasoline fuel that migrated through the soil and/or groundwater from the nearby LRC Coil Company, Unocal, Dayton or Valvoline facilities.

8.2 VOCs

Naphthalene concentrations in soil were generally below the soil ESL and the CA modified industrial PRG. However, naphthalene was detected in soil above the soil ESL and the CA modified industrial PRG in one location beneath the main facility trench (B-18). Naphthalene is a typical component of crude oil and middle distillates, and probably represents pre-existing oil production facility waste in the fill material. In 2001/2002, groundwater sampled east of the stripping department (B10) contained naphthalene above the ESL. The naphthalene is consistent with possible migration through soil and groundwater from the adjacent former Unocal and Dayton Superior facilities or from vertical migration of the pre-existing oil production fill.

In soil gas, PCE, TCE, and cis-1,2-DCE were detected above the soil gas ESLs in the following areas: near the former PCE AST and farther to the north, the facility inspection area, in the vicinity of the chiller, former vapor degreaser, and southern chemical storage area. VC was detected above the MDL in the areas mentioned previously for PCE.

In soil, PCE was detected above the soil ESLs and the industrial PRG in the following areas: the former vapor degreaser, the central chemical storage area, and the wastewater treatment area near the batch neutralization tanks and the stripping department. PCE was detected below the industrial PRG but above the soil ESL beneath the southern chemical storage area. TCE was detected above the soil screening levels but below the industrial PRG in the areas mentioned previously for PCE. Cis-1,2-DCE was detected above the soil ESL but below the industrial PRG beneath the former vapor degreaser.

Each of the Site areas are discussed below:

Former PCE AST

PCE and TCE were detected above the soil gas ESLs near the former AST and to the north. PCE in soil gas is laterally delineated to the east, south, and west, as depicted on **Figure 6**. VC was detected above the MDL near the former AST and to the north. VC is also laterally delineated to the east, south, and west. PCE and VC are present near the northern boundary of the Site and their extent beyond the Site boundary is unknown. Soil boreholes were not advanced in this area.

Inspection Area of the Facility

PCE was detected above the soil gas ESLs beneath the facility inspection area. VC was detected above the MDL beneath the facility inspection area. PCE (**Figure 6**) and VC are laterally delineated to the north, east, south, and west.

Vicinity of the Chiller

PCE was detected above the soil gas ESLs in the vicinity of the chiller. VC was detected above the MDL in the vicinity of the chiller. PCE (**Figure 6**) and VC are laterally delineated to the north, east, south, and west.

Former Vapor Degreaser

Cis-1,2-DCE was detected above the soil gas ESLs near the former vapor degreaser. Cis-1,2-DCE is laterally delineated to the north, east, south, and west.

PCE, TCE, and cis-1,2-DCE were detected in soil above the soil ESLs near the former vapor degreaser. PCE is laterally delineated as depicted on **Figure 14**. TCE and cis-1,2-DCE are laterally delineated to the north, east, south, and west.

<u>Chemical Storage Areas (Central and Southern)</u>

PCE was detected above the industrial PRG and the soil ESL in shallow soil in the central chemical storage area. PCE is laterally delineated as depicted in **Figure 14** and vertically delineated as depicted on **Figure 13**.

PCE was detected above the soil gas ESL near the southern chemical storage area. VC was detected above the MDL near the southern chemical storage area. PCE (**Figure 6**) and VC are laterally delineated to the north, east, and west. The PCE and VC plumes border extend an unknown distance beyond the southern Site boundary.

PCE and TCE were detected in soil above the soil ESLs, but below the industrial PRGs near the southern chemical storage area. PCE and TCE are vertically delineated and laterally delineated to east, west, and north at 4 to 5 feet bgs. The southern chemical storage area is located along the southern border of the Site; and therefore, the southern extent of PCE and TCE beyond the Site property is unknown.

<u>Batch Neutralization Tanks and Stripping Department</u>

PCE and TCE were detected above the soil ESLs in shallow soil (0.5 feet bgs) east of the batch neutralization tanks and southeast of the stripping department. PCE and TCE are laterally delineated to the north, east, and west, as depicted on **Figures 13 and 14**. This area is located along the southern border of the Site; therefore, the southern extent of PCE and TCE beyond the Site property is unknown. PCE and TCE concentrations significantly decrease with depth, and decrease to less than the MDL in one borehole in the area.

In 2001/2002, groundwater was sampled east of the stripping department and contained VC above the groundwater ESL. VC may have leached to the groundwater from on-Site or off-Site sources. Dissolved chlorinated solvents in groundwater samples collected just upgradient from the Site associated with the Omega chemical facility may have impacted groundwater underneath the Site.

8.3 METALS

Arsenic concentrations in soil ranged from 4.6 to 27 mg/kg. Many of the concentrations exceeded the soil ESL and all concentrations exceeded the cancer industrial PRG; however, arsenic occurs naturally in soils throughout southern California and the concentrations detected are typical of background concentrations.

Copper and nickel concentrations in soil at the Site were generally below the residential PRGs (3,100 and 1,600 mg/kg, respectively) and the soil ESLs (230 and 150 mg/kg, respectively). However, copper and nickel were detected above the soil ESLs in two locations in B-2 and B-19 near lines one and five in the main facility. The elevated copper and nickel concentrations in borehole B-2 are delineated laterally by background concentrations in boreholes B-5, B-18, B-3, and B5 (**Figures 9 and 10**). The elevated copper and nickel concentrations at borehole B-19 are delineated laterally by background soil concentrations in boreholes B-18, B-3, B-10, and B-6 (**Figures 9 and 10**). The copper and nickel concentrations are delineated vertically by background concentrations in boreholes B-2 and B-19 at a depth of 7 feet bgs. Since the concentrations decrease to background levels by 7 feet, the metals do not represent a threat to groundwater.

Hexavalent chromium was generally not detected in soil beneath the Site. However, near line two beneath the main facility (B-3), hexavalent chromium was detected at 1-foot bgs at a concentration of 9.5 mg/kg, which is below the residential PRG (30 mg/kg) but above the soil ESL (1.8 mg/kg). Hexavalent chromium decreased with depth in B-3 to below the MDL of 0.5 mg/kg at 4 and 7 feet bgs. Therefore, hexavalent chromium is delineated both laterally and vertically beneath the Site, and does not represent a threat to groundwater

All other soil concentrations were similar to background levels measured at the St. Paul's High School or by Marrett et al (**Table 5**).

8.4 CYANIDE AND SVOCS

Cyanide and SVOCs were not detected in soil samples beneath the Site.

9 RECOMMENDATIONS

The fine-grained lithology beneath the Site appears to significantly limit the vertical migration of contaminants. VOCs that were detected in soil within the first foot were generally not detected by 5 or 7 feet bgs or at least reduced by an order of magnitude. As a result, soil gas concentrations at 5 feet were generally low. One exception to this was in the northern part of the Site, to the east of the facility building where TPH and PCE were detected above the soil gas ESLs. Additional soil boreholes are recommended in this area to determine the vertical and lateral extent of these contaminants. The additional boreholes could be advanced during the OU-2 investigation. As outlined in the approved *Workplan for Facility Investigation*, a workplan for OU-2 will be submitted after the investigation of OU-1 is complete.

10 LIMITATIONS

This report has been prepared for the exclusive use of Associated Plating Company (APC) as it pertains to the subsurface investigation performed at the APC metal plating facility in the City of Santa Fe Springs, California. Our services were performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable qualified environmental consultants practicing in this or similar locations. No other warranty, either expressed or implied, is made as to the professional advice included in this report. These services were performed consistent with our agreement with our client.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

With regard to geologic/hydrogeologic/contaminant conditions, our professional opinions are based in part on interpretation of data from discrete sampling locations. It should be noted that actual conditions at unsampled locations may differ from those interpreted from sampled locations.

Respectfully Submitted,

KOMEX

Lee Paprocki, R.G.	Mark Ausburn, R.G.
Senior Hydrogeologist	*Senior Manager*

11 REFERENCES

Clayton, 1997. **Groundwater Monitoring Report Fourth Quarter 1996, LADPW LOP File No. I-9083**, for Unocal Corporation, 9645 Santa Fe Springs Road, Santa Fe Springs, California 90670. Dated March 1997.

Dames & Moore, 1999. **Phase I Environmental Site Assessment and Limited Environmental Compliance Assessment**, Associated Plating Company, 9636 Ann Street, Santa Fe Springs, California 90670. Dated September 28, 1999.

DTSC, 2001. **Phase I Environmental Site Assessment Inspection Report** for Associated Plating Company, Inc. located at 9636 Ann Street, Santa Fe Springs, California, EPA ID Number CAD 043 079 110. Dated May 24, 2001.

DTSC, 2004a. **Comments on the Facility Investigation Workplan** for Associated Plating Company, Inc. located at 9636 Ann Street, Santa Fe Springs, California, EPA ID Number CAD 043 079 110. Dated April 1, 2004.

DTSC, 2004b. **DTSC Comments on Revised Facility Investigation Workplan** for Associated Plating Company Facility located at 9636 Ann Street, Santa Fe Springs, California, EPA ID Number CAD 043 079 110. Dated June 14, 2004.

DWR, 1961. **Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County. Bulletin No. 104. Appendix A Ground Water Geology**. State of California Department of Water Resources Southern District. Dated June 1961.

Geohazard, 1994. **Phase I Preliminary Site Assessment** for the property located at 9636 Ann Street, Santa Fe Springs, CA (GII Project No. 9401). Dated October 17, 1994.

Komex, 2004. **Workplan for Facility Investigation**, Associated Plating Company, Santa Fe Springs, California. Dated June 25, 2004.

NIOSH, 1985. **Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities**. Department of Health and Human Services Publication No. 85-115.

RWQCB, 2003. **July 2003 Update to Environmental Screening Levels Technical Document.** California Regional Water Control Board-Oakland, California. Dated July 2003.

URS, 2002. **Subsurface Investigation Report**, Associated Plating Company, Inc., 9636 Ann Street, Santa Fe Springs, California 90670. Dated April 23, 2002.

USEPA, 2002a. **Waste Disposal, Inc. Amended Record of Decision**. Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California 90670. United States Environmental Protection Agency Region 9 – San Francisco, California. Dated June 2002.

USEPA, 2002b. **Region 9 PRGs Table 2002 Update**. United States Environmental Protection Agency Region 9 – San Francisco, California. Dated October 2002.

Weston Solutions, 2003. **Omega Chemical Superfund Site, Whittier, California, Phase II Groundwater Characterization Study**. Dated June 2003.

Weston Solutions, 2004. **Third Quarter 2003 Groundwater Monitoring Report,** Omega Chemical Superfund Site, Whittier, California. Dated February 9, 2004.

TABLES

TABLE 1
TPH Soil Gas Results
APC

Chemical Name	Soil Gas ESL (ug/L)	Location	B-1	B-2	B-3	B-4	B-5	B-6	B-6	B-6 (dup)	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-21	B-23
		Depth (ft bgs)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Sample ID	SV-B1-5	SV-B2-5	SV-B3-5	SV-B4-5	SV-B6-5	SV-B6-5	SV-B6-5	SV-B6-5 dup	SV-B7-5	SV-B8-5	SV-B9-5	SV-B10-5	SV-B11-5	SV-B12-5	SV-B13-5	SV-B14-5	SV-B15-5	SV-B16-5	SV-B17-5	SV-B21-5	SV-B23-5
		Units / Date	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/13/04	09/13/04
Gasoline (C5-C11)	**29**	µg/L	**710**	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	**580**	<500	<500	<500	<500	<500	<500	<500	<500	<500

Chemical Name	Soil Gas ESL (ug/L)	Location	B-28	B-29	B-30	B-31	B-32	B-33	B-34	B-35	B-36	B-36 (dup)	B-37	B-38	B-39	B-40	B-41	B-42	B-43	B-43 (dup)	B-44	B-45	B-46
		Depth (ft bgs)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	5
		Sample ID	SV-B28-5	SV-B29-5	SV-B30-5	SV-B31-5	SV-B32-5	SV-B33-5	SV-B34-5	SV-B35-5	SV-B36-5	SV-B36-5 dup	SV-B37-5	SV-B38-5	SV-B39-5	SV-B40-5	SV-B41-5	SV-B42-5	SV-B43-5	SV-B43-5 dup	SV-B44-4	SV-B45-4	SV-B46-5
		Units / Date	09/09/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04
Gasoline (C5-C11)	**29**	µg/L	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	**16,000**	**560**	<500	<500	<500	<500	<500	<500	<500

Notes:
1- Soil Gas ESL = Commercial/Industrial shallow soil gas screening level according to the California Regional Water Quality Control Board
2- ft bgs = feet below ground surface
3- µg/L = micrograms per liter
4- < 500 = compound not detected above the laboratory specified detection limits
5- (dup) = duplicate sample

TABLE 2
VOC Soil Gas Results
APC

Chemical Name	Soil	Location		B-1	B-2	B-3	B-4	B-5	B-6	B-6	B-6 (dup)	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-21	B-23
	Gas	Depth (ft bgs)		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	ESL	Sample ID		SV-B1-5	SV-B2-5	SV-B3-5	SV-B4-5	SV-B6-5	SV-B6-5	SV-B6-5	SV-B6-5 dup	SV-B7-5	SV-B8-5	SV-B9-5	SV-B10-5	SV-B11-5	SV-B12-5	SV-B13-5	SV-B14-5	SV-B15-5	SV-B16-5	SV-B17-5	SV-B21-5	SV-B23-5
	(ug/L)	Units	Date	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04	09/13/04	09/13/04
1 1 1 2-Tetrachloroethane	**1.1**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
1 1 1-Trichloroethane	**130**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
1 1 2 2-Tetrachloroethane	**0.14**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
1 1 2-Trichloroethane	**0.51**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
1 1-Dichloroethane	**5.1**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	**3.2**	<1 0	<1.0
1 1-Dichloroethene	**120**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
1 2-Dichloroethane	**0.39**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Benzene	**0.28**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Carbon tetrachloride	**0.19**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Chloroethane	**9.9**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Chloroform	**1.5**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
cis-1 2-Dichloroethene (cis 1 2-DCE)	**20**	µg/L		**210**	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	**13**	<1 0	<1.0
Dichlorodifluoromethane	**NA**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Ethylbenzene	**7.4**	µg/L		<1 0	<1.0	<1 0	**1.9**	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	**1.9**	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Freon 113	**NA**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
m p-Xylene	**NA**	µg/L		<1 0	<1.0	<1 0	**5.1**	<2 0	<2.0	<2 0	<2.0	<1.0	<1.0	<2.0	<2 0	<2.0	<2 0	<2.0	<2 0	<2.0	<2 0	<2.0	<2 0	<2.0
o-Xylene	**NA**	µg/L		<1 0	<1.0	<1 0	**1.3**	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Total xylenes	**58**	µg/L		<1 0	<1.0	<1 0	**6.4**	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Methylene chloride	**8.2**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<2.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Tetrachloroethene (PCE)	**1.4**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	**5.3**	<1.0	**2.1**	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	**26**	**14**	<1.0
Toluene	**230**	µg/L		**1.1**	**1.0**	<1 0	**1.1**	**1.1**	**1.5**	**1.6**	**1.4**	**1.4**	**1.5**	**2.3**	<1 0	<1.0	<1 0	**1.8**	**1.9**	**1.4**	**1.2**	**1.5**	<1 0	<1.0
trans-1 2-Dichloroethene	**41**	µg/L		**16**	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	**13**	<1 0	<1.0
Trichloroethene (TCE)	**4.1**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Trichlorofluoromethane	**NA**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0
Vinyl chloride (VC)	**0.1**	µg/L		<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	**2.2**	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	**210**	<1 0	<1.0
1 1-Difluoroethane*	**NA**	µg/L		<10	<10	<10	<10	<10	**49**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Notes:
1- Soil Gas ESL = Commercial/Industrial shallow soil gas screening level
according to the California Regional Water Quality Control Board
2- ft bgs = feet below ground surface
3- µg/L = micrograms per liter
4- < 1.0 = compound not detected above the laboratory specified
detection limits
5- (dup) = duplicate sample
6- NA = not available
7- 1 1-Difluoroethane* was used as a tracer for the leak test

TABLE 2
VOC Soil Gas Results
APC

Chemical Name	Soil	Location	B-28	B-29	B-30	B-31	B-32	B-33	B-34	B-35	B-36	B-36 (dup)	B-37	B-38	B-39	B-40	B-41	B-42	B-43	B-43 (dup)	B-44	B-45	B-46
	Gas	Depth (ft bgs)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	ESL	Sample ID	SV-B28-5	SV-B29-5	SV-B30-5	SV-B31-5	SV-B32-5	SV-B33-5	SV-B34-5	SV-B35-5	SV-B36-5	SV-B36-5 dup	SV-B37-5	SV-B38-5	SV-B39-5	SV-B40-5	SV-B41-5	SV-B42-5	SV-B43-5	SV-B43-5 dup	SV-B44-4	SV-B45-4	SV-B46-5
	(ug/L)	Units Date	09/09/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04	09/13/04
1 1 1 2-Tetrachloroethane	**1.1**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
1 1 1-Trichloroethane	**130**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
1 1 2 2-Tetrachloroethane	**0.14**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
1 1 2-Trichloroethane	**0.51**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
1 1-Dichloroethane	**5.1**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
1 1-Dichloroethene	**120**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
1 2-Dichloroethane	**0.39**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Benzene	**0.28**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Carbon tetrachloride	**0.19**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Chloroethane	**9.9**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Chloroform	**1.5**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
cis-1 2-Dichloroethene (cis 1 2-DCE)	**20**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	**2.4**	<1.0	<10	**3.9**	**3.4**	**1.7**	<1 0	<1 0	<1.0	<1.0	<1 0
Dichlorodifluoromethane	**NA**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Ethylbenzene	**7.4**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	**1.7**
Freon 113	**NA**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
m p-Xylene	**NA**	µg/L	<2.0	<2 0	<2.0	<2 0	<1.0	<2 0	<2.0	<2 0	<2.0	<2.0	<2 0	<2.0	<10	<2.0	<2 0	<2.0	<2 0	<2 0	<1.0	<2.0	<2 0
o-Xylene	**NA**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Total xylenes	**58**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Methylene chloride	**8.2**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Tetrachloroethene (PCE)	**1.4**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	**9.1**	**1.1**	<1 0	<1.0	<1.0	**98**	**110**	<10	<1.0	<1 0	<1.0	<1 0	**1.0**	<1.0	<1.0	<1 0
Toluene	**230**	µg/L	**1.5**	**1.2**	<1.0	<1 0	<1.0	<1 0	**1.2**	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	**1.2**	<1 0	<1 0	<1.0	<1.0	**1.3**
trans-1 2-Dichloroethene	**41**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	**3.5**	<1.0	<10	**1.4**	**1.6**	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Trichloroethene (TCE)	**4.1**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	**54**	**20**	<10	**1.8**	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Trichlorofluoromethane	**NA**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<10	<1.0	<1 0	<1.0	<1 0	<1 0	<1.0	<1.0	<1 0
Vinyl chloride (VC)	**0.1**	µg/L	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	**49**	**2.6**	<1 0	**38**	<1 0	<1 0	<1.0	<1.0	**46**
1 1-Difluoroethane*	**NA**	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Notes:
1- Soil Gas ESL = Commercial/Industrial shallow soil gas screening level
according to the California Regional Water Quality Control Board
2- ft bgs = feet below ground surface
3- µg/L = micrograms per liter
4- < 1 0 = compound not detected above the laboratory specified
detection limits
5- (dup) = duplicate sample
6- NA = not available
7- 1 1-Difluoroethane* was used as a tracer for the leak test

Chemical Name	Soil	Location	B-18	B-18	B-19	B-19	B-20	B-20	B-20	B-22	B-22	B-22	B-23	B-23	B-23
	ESL	Sample ID	B-18-90704-1-4	B-18-90704-2-7	B-19-90704-1-4	B-19-90704-2-7	B-20-90804-1-1	B-20-90804-2-4	B-20-90804-3-7	B-22-90804-1-1	B-22-90804-2-4	B-22-90804-3-7	B-23-90804-1-1	B-23-90804-2-4	B-23-90804-3-7
	(mg/kg)	Borehole Depth (ft bgs)	4	7	4	7	1	4	7	1	4	7	1	4	7
	Middle distillates/residual fuels	Units / Date	9/7/2004	9/7/2004	9/7/2004	9/7/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004
HC<C8	-	mg/kg	<1.0	<1.0	<1.0	**1.2**	<1.0	**14**	<5.0	<1.0	<10	<10	<1.0	**27**	<1.0
HC C8-C9	-	mg/kg	<1.0	<1.0	<1.0	**6**	<1.0	**61**	**8.5**	<1.0	<10	<10	<1.0	**120**	<1.0
HC C9-C10	-	mg/kg	<1.0	**1.3**	<1.0	**7.6**	<1.0	**88**	**15**	<1.0	<10	<10	<1.0	**210**	<1.0
HC C10-C11	-	mg/kg	<1.0	**1.4**	<1.0	**7.7**	<1.0	**96**	**20**	<1.0	<10	**19**	<1.0	**270**	<1.0
HC C11-C12	-	mg/kg	<1.0	<1.0	<1.0	**7.7**	<1.0	**94**	**22**	<1.0	<10	**21**	<1.0	**260**	<1.0
HC C12-C14	-	mg/kg	<1.0	**2.5**	**3.5**	**30**	<1.0	**370**	**84**	<1.0	**92**	**94**	<1.0	**910**	<1.0
HC C14-C16	-	mg/kg	<1.0	**1.7**	**4.9**	**28**	<1.0	**330**	**78**	<1.0	**170**	**86**	<1.0	**840**	<1.0
HC C16-C18	-	mg/kg	**1.6**	**1.9**	**6.5**	**29**	<1.0	**280**	**90**	<1.0	**270**	**86**	<1.0	**750**	<1.0
HC C18-C20	-	mg/kg	**3.9**	**1.9**	**3.8**	**14**	<1.0	**170**	**96**	<1.0	**220**	**48**	<1.0	**490**	<1.0
HC C20-C24	-	mg/kg	**22**	**9.1**	**24**	**44**	<1.0	**460**	**230**	**3.7**	**760**	**190**	**2.7**	**1100**	<1.0
HC C24-C28	-	mg/kg	**40**	**11**	**27**	**37**	<1.0	**360**	**210**	**7.2**	**780**	**200**	**6.3**	**770**	<1.0
HC C28-C32	-	mg/kg	**37**	<1.0	**25**	**31**	<1.0	**290**	**150**	<1.0	**690**	**55**	**2.6**	**600**	<1.0
HC >C32	-	mg/kg	<1.0	<1.0	<1.0	**1.7**	<1.0	**18**	**8**	<1.0	**25**	<10	<1.0	**38**	<1.0
HC Extractable Hydrocarbons C7-C36	**500/1000**	mg/kg	**105**	**31**	**95**	**245**	<5.0	**2631**	**1012**	**11**	**3007**	**799**	**12**	**6385**	<5.0

Notes:
1- TPHe = total petroleum hydrocarbons - extractable
2- ft bgs = feet below ground surface
3- Soil ESL = Commercial/Industrial shallow soil screening level according
to the California Regional Water Quality Control Board
4- mg/kg = milligrams per kilogram
5- < 1 0 = compound not detected above the laboratory specified detection limits
6- HC = petroleum hydrocarbon

Chemical Name	Soil	Location		B-24	B-24	B-24	B-25	B-25	B-25	B-26	B-26	B-26	B-27	B-27	B-27
	ESL	Sample ID		B-24-90804-1-1	B-24-90804-2-4	B-24-90804-3-7	B-25-90804-1-1	B-25-90804-2-4	B-25-90804-3-7	B-26-90804-1-1	B-26-90804-2-4	B-26-90804-3-7	B-27-90804-1-1	B-27-90804-2-4	B-27-90804-3-7
	(mg/kg)	Borehole Depth (ft bgs)		1	4	7	1	4	7	1	4	7	1	4	7
	Middle distillates/residual fuels	Units	Date	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004
HC<C8	-	mg/kg		11	21	<1.0	23	<1.0	8	<5.0	<10	<5.0	<5.0	<1.0	<1.0
HC C8-C9	-	mg/kg		<5.0	81	<1.0	71	1.2	34	<5.0	18	30	<5.0	2	1.4
HC C9-C10	-	mg/kg		40	130	<1.0	120	1.8	64	<5.0	28	58	<5.0	2.7	4.4
HC C10-C11	-	mg/kg		140	170	<1.0	190	2	82	<5.0	43	73	<5.0	3.3	7.3
HC C11-C12	-	mg/kg		120	150	<1.0	140	2.5	75	<5.0	37	87	<5.0	3.6	7.1
HC C12-C14	-	mg/kg		140	680	<1.0	570	9.6	300	<5.0	160	290	83	13	28
HC C14-C16	-	mg/kg		40	720	<1.0	490	5.4	310	8	150	250	210	12	30
HC C16-C18	-	mg/kg		<5.0	660	<1.0	490	5.3	230	35	110	250	240	13	23
HC C18-C20	-	mg/kg		<5.0	460	<1.0	300	2.5	270	32	69	240	130	7.2	14
HC C20-C24	-	mg/kg		140	1100	<1.0	660	9.6	520	150	230	450	700	19	42
HC C24-C28	-	mg/kg		200	790	<1.0	470	9.2	460	200	190	370	600	14	36
HC C28-C32	-	mg/kg		180	640	<1.0	340	<1.0	340	140	58	290	510	3.9	23
HC >C32	-	mg/kg		8.5	37	<1.0	23	<1.0	<5.0	<5.0	<10	9	34	<1.0	<1.0
HC Extractable Hydrocarbons C7-C36	500/1000	mg/kg		1020	5639	<5.0	3887	49	2693	565	1093	2397	2507	94	216

Notes:
1- TPHe = total petroleum hydrocarbons - extractable
2- ft bgs = feet below ground surface
3- Soil ESL = Commercial/Industrial shallow soil screening level according
to the California Regional Water Quality Control Board
4- mg/kg = milligrams per kilogram
5- < 1.0 = compound not detected above the laboratory specified detection limits
6- HC = petroleum hydrocarbon

TABLE 4
VOC SOIL RESULTS
APC

Chemical Name	Soil	Preliminary	Location	B-18	B-18	B-19	B-19	B-20	B-20	B-20	B-22	B-22	B-22	B-23	B-23	B-23
	ESL	Remediation	Sample ID	B-18-90704-1-4	B-18-90704-2-7	B-19-90704-1-4	B-19-90704-2-7	B-20-90804-1-1	B-20-90804-2-4	B-20-90804-3-7	B-22-90804-1-1	B-22-90804-2-4	B-22-90804-3-7	B-23-90804-1-1	B-23-90804-2-4	B-23-90804-3-7
		Goal	Depth (ft bgs)	4	7	4	7	1	4	7	1	4	7	1	4	7
	(ug/kg)	(ug/kg)	Units Date	9/7/2004	9/7/2004	9/7/2004	9/7/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004
1 1 1 2-Tetrachloroethane	7 200	7 300	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 1 1-Tr chloroethane	7 800	1 200 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 1 2 2-Tetrachloroethane	25	930	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 1 2-Tr chloroethane	91	1 600	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 1-Dichloroethane	910	6 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	4.9	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 1-Dichloroethene	4 300	410 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 1-Dichloropropylene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2 3-Tr chlorobenzene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2 3-Trichloropropane	NA	76	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2 4-Tr chlorobenzene	7 600	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2 4-Trimethy benzene	NA	NA	µg/kg	<8.3	6 700	27	18	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2-Dibromo-3-Chloropropane (DBCP)	1.1	76	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2-Dibromoethane	21	73	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2-Dichlorobenzene	1 600	600 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2-Dichloroethane	69	600	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 2-Dichloropropane	150	740	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 3 5-Trimethy benzene	NA	70 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 3-Dichloropropane	91	360 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
1 4-Dichlorobenzene	130	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
2 2-Dichloropropane	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
2-Chlorotoluene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
2-Phenylbutane	NA	NA	µg/kg	<8.3	3 700	4.6	<4.0	<3.7	29	6.4	<3.9	<4.1	<5.0	<4.1	22	20
4-Chlorotoluene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Benzene	380	1 400	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Bromobenzene	NA	92 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Bromodichloromethane	39	1 800	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Bromomethane	510	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Butylbenzene n-	NA	240 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Carbon Tetrachloride	35	550	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
CFC-11	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
CFC-12	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Chlorobenzene	1 500	530 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Chlorobromomethane	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Chlorod bromomethane	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Chloroethane	850	6 500	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Chloroform	270	2 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Chloromethane	810	160 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Cis-1 2-Dichloroethene (cis 1 2-DCE)	3 600	150 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	13	<4.4	210	800	240	24	42	9.3
Cis-1 3-D chloropropene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Cymene	NA	NA	µg/kg	<8.3	2 400	5.2	<4.0	<3.7	7.4	<4.4	<3.9	<4.1	<5.0	<4.1	8.2	4.1
Dibromomethane	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Dichloromethane	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Di sopropyl Ether	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Ethylbenzene	13 000	400 000	µg/kg	<8.3	7 900	13	6.7	<3.7	200	<4.4	<3.9	<4.1	<5.0	<4.1	43	<4.0
Ethyl-tert-Butyl Ether	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Hexachloro-1 3-Butadiene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Isopropylbenzene	NA	520 000	µg/kg	<8.3	5 100	7.0	5.5	<3.7	87	15	<3.9	<4.1	<5.0	<4.1	26	58
M-Dichlorobenzene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Methyl-tert-Butyl Ether	5 600	36 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Naphthalene	4 800	4 200/190 000*	µg/kg	<8.3	30 000	69	37	<3.7	350	100	<3.9	<4.1	110	<4.1	150	240
O-Xylene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Xylene P- M-	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Propylbenzene n-	NA	NA	µg/kg	<8.3	8 100	8.7	<4.0	<3.7	100	20	<3.9	<4.1	<5.0	<4.1	26	66
Styrene (Monomer)	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Tert-Amyl-Methyl Ether	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Tert-Butyl Alchohol	NA	NA	µg/kg	<41	<2900	<20	<20	<18	<19	<22	<19	<20	<25	<21	<20	<20
Tert-Butylbenzene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Tetrachloroethene (PCE)	250	1 300	µg/kg	140	<570	71	<4.0	<3.7	<3.8	<4.4	1 900	110	<5.0	<4.1	<4.0	<4.0
Toluene	9 300	520 000	µg/kg	<8.3	<570	5.6	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Trans-1 2-Dichloroethene	7 300	230 000	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	5.8	<4.4	74	400	220	5.5	16	<4.0
Trans-1 3-Dichloropropene	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Tr bromomethane	NA	NA	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0
Tr chloroethene (TCE)	730	6 500	µg/kg	70	<570	8.7	<4.0	<3.7	6.7	<4.4	210	290	<5.0	<4.1	<4.0	<4.0
Vinyl Chloride (VC)	19	750	µg/kg	<8.3	<570	<3.9	<4.0	<3.7	<3.8	<4.4	<3.9	<4.1	<5.0	<4.1	<4.0	<4.0

Notes

1- Soil ESL Commercial/Industrial shallow so l screen ng level according to the California Regional Water Quality Control Board

2- Prel minary Remediat on Goal (PRG) Industrial prel minary remediation goal accord ng to CA EPA

3- µg/kg m crograms per k logram

4- < 1.0 compound not detected above the laboratory specified detection limits

5- VOC volatile organic compound

6- ft bgs feet below ground surface

7-4 200/190 000** cancer PRG/noncancer PRG

KOMEX
USA CANADA UK AND WORLDWIDE

	Environmental	Preliminary	Location	B-24	B-24	B-24	B-25	B-25	B-25	B-26	B-26	B-26	B-27	B-27	B-27
	Soil Screening	**Remediation**	**Sample ID**	**B-24-90804-1-1**	**B-24-90804-2-4**	**B-24-90804-3-7**	**B-25-90804-1-1**	**B-25-90804-2-4**	**B-25-90804-3-7**	**B-26-90804-1-1**	**B-26-90804-2-4**	**B-26-90804-3-7**	**B-27-90804-1-1**	**B-27-90804-2-4**	**B-27-90804-3-7**
	Level	**Goal**	**Depth (ft bgs)**	**1**	**4**	**7**	**1**	**4**	**7**	**1**	**4**	**7**	**1**	**4**	**7**
Chemical Name	(ug/kg)	(ug/kg)	**Units Date**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**	**9/8/2004**
1 1 1 2-Tetrachloroethane	**7 200**	**7 300**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 1 1-Tr chloroethane	**7 800**	**1 200 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 1 2 2-Tetrachloroethane	**25**	**930**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 1 2-Tr chloroethane	**91**	**1 600**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 1-Dichloroethane	**910**	**6 000**	µg/kg	**5.0**	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 1-Dichloroethylene	**4 300**	**410 000**	µg/kg	**6.7**	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 1-Dichloropropylene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2 3-Tr chlorobenzene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2 3-Trichloropropane	**NA**	**76**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2 4-Tr chlorobenzene	**7 600**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2 4-Tr methy benzene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2-Dibromo-3-Chloropropane (DBCP)	**1.1**	**76**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2-Dibromoethane	**21**	**73**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2-Dichlorobenzene	**1 600**	**600 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2-Dichloroethane	**69**	**600**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 2-Dichloropropane	**150**	**740**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 3 5-Tr methy benzene	**NA**	**70 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 3-Dichloropropane	**91**	**360 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
1 4-Dichlorobenzene	**130**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
2 2-Dichloropropane	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
2-Chlorotoluene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
2-Phenylbutane	**NA**	**NA**	µg/kg	<3.8	**4.4**	<6.0	<4.0	**14**	**6.0**	<4.0	<4.1	**9.0**	<4.3	<3.9	**4.2**
4-Chlorotoluene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Benzene	**380**	**1 400**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Bromobenzene	**NA**	**92 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Bromodichloromethane	**39**	**1 800**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Bromomethane	**510**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Butylbenzene n-	**NA**	**240 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Carbon Tetrachloride	**35**	**550**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
CFC-11	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
CFC-12	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Chlorobenzene	**1 500**	**530 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Chlorobromomethane	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Chlorod bromomethane	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Chloroethane	**850**	**6 500**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Chloroform	**270**	**2 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Chloromethane	**810**	**160 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Cis-1 2-D chloroethene	**3 600**	**150 000**	µg/kg	**3 100**	**5 500**	**400**	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	**65**	**430**	**11**
Cis-1 3-Dichloropropene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Cymene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Dibromomethane	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Dichloromethane	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Di sopropyl Ether	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Ethylbenzene	**13 000**	**400 000**	µg/kg	<3.8	**11**	**7.4**	<4.0	<5.0	<4.2	<4.0	**4.4**	<4.1	<4.3	<3.9	<4.1
Ethyl-tert-Butyl Ether	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Hexachloro-1 3-Butadiene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Isopropy benzene	**NA**	**520 000**	µg/kg	<3.8	**5.0**	<6.0	<4.0	**36**	**9.2**	<4.0	**5.7**	**31**	<4.3	<3.9	**11**
M-Dichlorobenzene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Methyl-tert-Butyl Ether	**5 600**	**36 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	**5.2**	**5.1**
Naphthalene	**4 800**	**4 200/190 000***	µg/kg	**7.2**	<4.3	**17**	<4.0	**180**	<4.2	<4.0	**26**	**120**	<4.3	**7.9**	**70**
O-Xylene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Xylene P- M-	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Propylbenzene n-	**NA**	**NA**	µg/kg	<3.8	**6.2**	<6.0	<4.0	**44**	**7.8**	<4.0	**6.4**	**35**	<4.3	<3.9	**14**
Styrene (Monomer)	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Tert-Amyl-Methyl Ether	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Tert-Butyl Alchohol	**NA**	**NA**	µg/kg	<19	<22	**41**	<20	<25	<21	<20	<20	<20	<22	<20	<21
Tert-Butylbenzene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Tetrachloroethene	**250**	**1 300**	µg/kg	**1 900**	<4.3	**150**	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Toluene	**9 300**	**520 000**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Trans-1 2-Dichloroethene	**7 300**	**230 000**	µg/kg	**380**	**240**	**150**	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	**67**	<4.1
Trans-1 3-Dichloropropene	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Tribromomethane	**NA**	**NA**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1
Tr chloroethene	**730**	**6 500**	µg/kg	**1 900**	**11**	**32**	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	**13**	<3.9	<4.1
V nyl Chloride	**19**	**750**	µg/kg	<3.8	<4.3	<6.0	<4.0	<5.0	<4.2	<4.0	<4.1	<4.1	<4.3	<3.9	<4.1

Notes

1- Soil ESL Commercial/Industrial shallow so l screening level according to the California Regional Water Quality Control Board

2- Preliminary Remediat on Goal (PRG) Industrial prel minary remed ation goal accord ng to CA EPA

3- µg/kg micrograms per kilogram

4- < 1.0 compound not detected above the laboratory specified detection limits

5- VOC volat le organic compound

6- ft bgs feet below ground surface

7-4 200/190 000** cancer PRG/noncancer PRG

TABLE 5
Metal, Cyanide, Chloride, and PH Soil Results
APC

Chemical Name	Soil ESL	PRG	Marrett et al. Southern California Background Soil Results		Marrett et al. Pristine Desert Background Soil Results		WDI (St. Paul's High School) Background Soil Results		Location		B-2	B-2	B-2	B-3	B-3	B-3	B-5	B-5	B-5	B-6	B-6	B-6	B-10	B-10
									Sample ID		B-2-90804-1-1	B-2-90804-2-4	B-2-90804-3-7	B-3-90804-1-1	B-3-90804-2-4	B-3-90804-3-7	B-5-90804-1-1	B-5-90804-2-4	B-5-90804-3-7	B-6-90804-1-1	B-6-90804-2-4	B-6-90804-3-7	B-10-90804-1-1	B-10-90804-2-4
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Depth (ft bgs)		1	4	7	1	4	7	1	4	7	1	4	7	1	4
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Units	Date	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004
pH	-	-	NA	NA	NA	NA	NA	NA			4.20	6.80	7.20	11.9	NA	NA	9.80	7.70	7.40	7.20	7.50	7.50	NA	NA
Antimony	40	410	0.12	1.9	NA	NA	NA	NA	mg/kg		<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1.0	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<0.91
Arsenic	5.5	0.25	1	61.1	2	30.6	1.63	15.90	mg/kg		4.6	6.8	11	5.2	7.7	19	6.0	6.8	27	8.6	9.1	11	11	13
Barium	1,500	67,000	23	670	288	911	NA	NA	mg/kg		44	170	160	110	200	160	100	160	180	190	170	170	93	180
Beryllium	8	1,900	0.1	2.2	NA	NA	NA	NA	mg/kg		<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1.0	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<0.91
Cadmium	7.4	450	0.05	3.59	0.04	0.42	0.26	0.36	mg/kg		<1.0	<1 0	<1.0	4.4	<1 0	<1.0	<1.0	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<0.91
Chloride	-	-	NA	NA	NA	NA	NA	NA	mg/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800	NA	NA	NA
Total Chromium	58	450	5.8	35.2	8	113	5.90	51.20	mg/kg		14	35	32	33	32	32	17	29	31	34	31	31	20	35
Hexavalent Chromium	1.8	64	NA	NA	NA	NA	NA	NA	mg/kg		<0 50	<0.50	<0.50	9.5	<0.50	<0 50	<0 50	<0 50	<0.50	<0.50	<0.50	<0 50	<0.50	<0 50
Cobalt	80	1,900	1.6	23.9	1.9	16.9	NA	NA	mg/kg		6.3	15	13	5.7	13	12	32	12	12	13	13	13	5.3	14
Copper	230	41,000	3.8	82	8.4	258	4.95	41.50	mg/kg		260	30	31	69	28	29	25	28	33	30	30	28	38	31
Cyanide	500	12,000	NA	NA	NA	NA	NA	NA	mg/kg		<2 50	<2.50	<2.50	<2 50	<2.50	<2 50	<2 50	<2 50	<2.50	<2.50	<2.50	<2 50	<2.50	<2 50
Lead	750	800	2.5	246	9.8	54.5	1.70	10.00	mg/kg		3.9	7.6	7.8	5.5	8.1	9.7	11	9.8	7.7	9.9	7.4	6.7	5.9	7.3
Mercury	10	3,100	0.1	2.7	NA	NA	0.02	0.19	mg/kg		<0.18	<0.18	<0.15	<0.16	<0.16	<0.16	<0.15	<0.18	<0.18	<0.15	<0.18	<0.16	<0.18	<0.16
Molybdenum	40	5,100	0.15	2.8	NA	NA	NA	NA	mg/kg		<1.5	<1 5	<1.5	<1.4	<1 5	<1.5	<1.5	<1.4	<1.5	<1 5	<1.5	<1.5	<1 5	<1.4
Nickel	150	2,000	3.5	28.2	7.2	25.1	NA	NA	mg/kg		460	170	26	26	24	23	21	22	27	26	24	24	30	27
Selenium	10	5,100	NA	NA	NA	NA	0.20	0.28	mg/kg		<1.5	<1 5	<1.5	<1.4	<1 5	<1.5	<1.5	<1.4	<1.5	<1 5	<1.5	<1.5	<1 5	<1.4
Silver	40	5,100	0.07	6.2	NA	NA	NA	NA	mg/kg		<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1.0	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<0.91
Thallium	13	67	0.1	1	NA	NA	NA	NA	mg/kg		<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1.0	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<0.91
Vanadium	200	1,000	18	90.5	40	127	NA	NA	mg/kg		32	64	60	42	44	50	37	58	58	64	58	58	36	51
Zinc	600	100,000	10.3	396	7	109	NA	NA	mg/kg		36	74	72	38	64	99	46	65	63	68	64	61	41	65

Notes:
1- Soil ESL = Commercial/Industrial shallow soil screening level according to the California Regional Water Quality Control Board
2- PRG = Industrial Preliminary Remediation Goal according to CA EPA
3- Marrett et al. 1992. *Background Levels of Soil Trace Elements in Southern California Soils.*
4- Marrett et al. 1991. *Background Levels of soil Trace Elements In Southern California Soils.*
5- Ebasco. 1989. *WDI Final Remedial Investigation Report.*
3- mg/kg = milligrams per kilogram
4- < 1 0 = compound not detected above the laboratory specified detection limits
5- ft bgs = feet below ground surface
6- NA = compound not analyzed

Chemical Name	Soil ESL	PRG	Marrett et al. Southern California Background Soil Results		Marrett et al. Pristine Desert Background Soil Results		WDI (St. Paul's High School) Background Soil Results		Location	B-10	B-18	B-18	B-19	B-19	B-20	B-20	B-20	B-22	B-22	B-22	B-23	B-23	B-23
									Sample ID	B-10-90804-3-7	B-18-90704-1-4	B-18-90704-2-7	B-19-90704-1-4	B-19-90704-2-7	B-20-90804-1-1	B-20-90804-2-4	B-20-90804-3-7	B-22-90804-1-1	B-22-90804-2-4	B-22-90804-3-7	B-23-90804-1-1	B-23-90804-2-4	B-23-90804-3-7
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Depth (ft bgs)	7	4	7	4	7	1	4	7	1	4	7	1	4	7
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Units / Date	9/8/2004	9/7/2004	9/7/2004	9/7/2004	9/7/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004
pH	-	-	NA	NA	NA	NA	NA	NA		NA	**7.10**	**6.90**	**9.90**	**7.40**	**7.90**	**7.50**	**7.60**	**7.40**	**7.30**	**9.20**	**7.70**	**7.50**	**7.40**
Antimony	**40**	**410**	**0.12**	**1.9**	NA	NA	NA	NA	mg/kg	<1.0	<0.89	<1.0	<1 0	<0.90	<1.0	<1 0	<1.0	**0.96**	<1 0	<1.0	<1 0	<1.0	<1.0
Arsenic	**5.5**	**0.25**	**1**	**61.1**	**2**	**30.6**	**1.63**	**15.90**	mg/kg	**10**	**7.5**	**13**	**5.1**	**20**	**7.2**	**6.7**	**13**	**8.8**	**5.7**	**6.9**	**9.4**	**8.1**	**5.9**
Barium	**1,500**	**67,000**	**23**	**670**	**288**	**911**	NA	NA	mg/kg	**150**	**170**	**160**	**170**	**170**	**220**	**150**	**180**	**170**	**170**	**140**	**180**	**190**	**140**
Beryllium	**8**	**1,900**	**0.1**	**2.2**	NA	NA	NA	NA	mg/kg	<1.0	<0.89	<1.0	<1 0	<0.90	<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1 0	<1.0	<1.0
Cadmium	**7.4**	**450**	**0.05**	**3.59**	**0.04**	**0.42**	**0.26**	**0.36**	mg/kg	<1.0	<0.89	<1.0	**1.5**	<0.90	<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1 0	<1.0	<1.0
Chloride	**-**	**-**	NA	NA	NA	NA	NA	NA	mg/kg	NA	NA	NA	**5,120**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Chromium	**58**	**450**	**5.8**	**35.2**	**8**	**113**	**5.90**	**51.20**	mg/kg	**28**	**31**	**30**	**25**	**31**	**36**	**33**	**34**	**32**	**30**	**27**	**36**	**36**	**28**
Hexavalent Chromium	**1.8**	**64**	NA	NA	NA	NA	NA	NA	mg/kg	<0 50	<0.50	**0.51**	<0.50	<0 50	<0 50	<0.50	<0.50	<0 50	<0.50	<0 50	<0.50	<0.50	<0 50
Cobalt	**80**	**1,900**	**1.6**	**23.9**	**1.9**	**16.9**	NA	NA	mg/kg	**11**	**12**	**11**	**8.3**	**12**	**13**	**13**	**13**	**11**	**12**	**11**	**13**	**14**	**10**
Copper	**230**	**41,000**	**3.8**	**82**	**8.4**	**258**	**4.95**	**41.50**	mg/kg	**22**	**49**	**26**	**270**	**29**	**31**	**28**	**28**	**34**	**28**	**24**	**31**	**29**	**24**
Cyanide	**500**	**12,000**	NA	NA	NA	NA	NA	NA	mg/kg	<2 50	<2.50	<2 50	<2.50	<2 50	<2 50	<2.50	<2.50	<2 50	<2.50	<2 50	<2.50	<2.50	<2 50
Lead	**750**	**800**	**2.5**	**246**	**9.8**	**54.5**	**1.70**	**10.00**	mg/kg	**6.1**	**8.5**	**6.4**	**9.8**	**7.5**	**11**	**6.8**	**7.4**	**12**	**6.5**	**5.7**	**16**	**7.5**	**5.5**
Mercury	**10**	**3,100**	**0.1**	**2.7**	NA	NA	**0.02**	**0.19**	mg/kg	<0.15	<0.14	<0.16	<0.16	<0.16	<0.18	<0.15	<0.18	<0.15	<0.16	<0.18	<0.18	<0.15	<0.18
Molybdenum	**40**	**5,100**	**0.15**	**2.8**	NA	NA	NA	NA	mg/kg	<1.5	<1 3	<1.5	<1 5	<1.3	<1.5	<1 5	<1.5	<1.3	<1 5	<1.5	<1 5	<1.5	<1.5
Nickel	**150**	**2,000**	**3.5**	**28.2**	**7.2**	**25.1**	NA	NA	mg/kg	**21**	**26**	**23**	**270**	**25**	**26**	**23**	**25**	**26**	**24**	**20**	**26**	**26**	**20**
Selenium	**10**	**5,100**	NA	NA	NA	NA	**0.20**	**0.28**	mg/kg	<1.5	<1.4	<1.5	<1 5	<1.4	<1.5	<1 5	<1.5	<1.4	<1 5	<1.5	<1 5	<1.5	<1.5
Silver	**40**	**5,100**	**0.07**	**6.2**	NA	NA	NA	NA	mg/kg	<1.0	<0.89	<1.0	**3.7**	<0.90	<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1 0	<1.0	<1.0
Thallium	**13**	**67**	**0.1**	**1**	NA	NA	NA	NA	mg/kg	<1.0	<0.89	<1.0	<1 0	<0.90	<1.0	<1 0	<1.0	<0.90	<1 0	<1.0	<1 0	<1.0	<1.0
Vanadium	**200**	**1,000**	**18**	**90.5**	**40**	**127**	NA	NA	mg/kg	**45**	**58**	**56**	**40**	**58**	**51**	**47**	**51**	**48**	**44**	**41**	**51**	**54**	**41**
Zinc	**600**	**100,000**	**10.3**	**396**	**7**	**109**	NA	NA	mg/kg	**64**	**63**	**59**	**130**	**71**	**69**	**56**	**65**	**62**	**57**	**53**	**70**	**66**	**52**

Notes:
1- Soil ESL = Commercial/Industrial shallow soil screening level according to the California Regional Water Quality Control Board
2- PRG = Industrial Preliminary Remediation Goal according to CA EPA
3- Marrett et al. 1992. *Background Levels of Soil Trace Elements in Southern California Soils.*
4- Marrett et al. 1991. *Background Levels of soil Trace Elements In Southern California Soils.*
5- Ebasco. 1989. *WDI Final Remedial Investigation Report.*
3- mg/kg = milligrams per kilogram
4- < 1.0 = compound not detected above the laboratory specified detection limits
5- ft bgs = feet below ground surface
6- NA = compound not analyzed

Chemical Name	Soil ESL	PRG	Marrett et al. Southern California Background Soil Results		Marrett et al. Pristine Desert Background Soil Results		WDI (St. Paul's High School) Background Soil Results		Location	B-24	B-24	B-24	B-25	B-25	B-25	B-26	B-26	B-26	B-27	B-27	B-27
									Sample ID	B-24-90804-1-1	B-24-90804-2-4	B-24-90804-3-7	B-25-90804-1-1	B-25-90804-2-4	B-25-90804-3-7	B-26-90804-1-1	B-26-90804-2-4	B-26-90804-3-7	B-27-90804-1-1	B-27-90804-2-4	B-27-90804-3-7
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Depth (ft bgs)	1	4	7	1	4	7	1	4	7	1	4	7
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Units / Date	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004
pH	-	-	NA	NA	NA	NA	NA	NA		**8.30**	**7.80**	**7.50**	**7.80**	**7.70**	**7.50**	**6.90**	**6.80**	**6.60**	**7.50**	**7.20**	**7.20**
Antimony	**40**	**410**	**0.12**	**1.9**	NA	NA	NA	NA	mg/kg	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0
Arsenic	**5.5**	**0.25**	**1**	**61.1**	**2**	**30.6**	**1.63**	**15.90**	mg/kg	**12**	**11**	**7.9**	**7.0**	**8.2**	**8.3**	**8.4**	**6.8**	**9.8**	**7.0**	**6.6**	**6.8**
Barium	**1,500**	**67,000**	**23**	**670**	**288**	**911**	NA	NA	mg/kg	**150**	**210**	**140**	**180**	**180**	**180**	**180**	**160**	**150**	**230**	**130**	**130**
Beryllium	**8**	**1,900**	**0.1**	**2.2**	NA	NA	NA	NA	mg/kg	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0
Cadmium	**7.4**	**450**	**0.05**	**3.59**	**0.04**	**0.42**	**0.26**	**0.36**	mg/kg	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0
Chloride	**-**	**-**	NA	NA	NA	NA	NA	NA	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Chromium	**58**	**450**	**5.8**	**35.2**	**8**	**113**	**5.90**	**51.20**	mg/kg	**32**	**31**	**29**	**32**	**36**	**32**	**32**	**31**	**28**	**36**	**27**	**26**
Hexavalent Chromium	**1.8**	**64**	NA	NA	NA	NA	NA	NA	mg/kg	<0.50	<0 50	<0.50	<0.50	<0 50	<0.50	<0 50	<0.50	<0.50	<0 50	<0.50	<0 50
Cobalt	**80**	**1,900**	**1.6**	**23.9**	**1.9**	**16.9**	NA	NA	mg/kg	**12**	**12**	**11**	**13**	**15**	**12**	**13**	**12**	**11**	**14**	**10**	**11**
Copper	**230**	**41,000**	**3.8**	**82**	**8.4**	**258**	**4.95**	**41.50**	mg/kg	**45**	**27**	**26**	**30**	**30**	**30**	**30**	**28**	**24**	**37**	**24**	**23**
Cyanide	**500**	**12,000**	NA	NA	NA	NA	NA	NA	mg/kg	<2.50	<2 50	<2.50	<2.50	<2 50	<2.50	<2 50	<2.50	<2.50	<2 50	<2.50	<2 50
Lead	**750**	**800**	**2.5**	**246**	**9.8**	**54.5**	**1.70**	**10.00**	mg/kg	**14**	**7.6**	**7.0**	**6.9**	**7.5**	**7.5**	**15**	**6.5**	**5.9**	**8.0**	**6.3**	**5.8**
Mercury	**10**	**3,100**	**0.1**	**2.7**	NA	NA	**0.02**	**0.19**	mg/kg	<0.18	<0.18	<0.16	<0.18	<0.18	<0.18	<0.18	<0.18	<0.16	<0.18	<0.18	<0.16
Molybdenum	**40**	**5,100**	**0.15**	**2.8**	NA	NA	NA	NA	mg/kg	<1 3	<1.5	<1 5	<1.5	<1.5	<1 5	<1.5	<1 5	<1.5	<1.5	<1 5	<1.5
Nickel	**150**	**2,000**	**3.5**	**28.2**	**7.2**	**25.1**	NA	NA	mg/kg	**29**	**24**	**21**	**26**	**26**	**24**	**25**	**22**	**21**	**29**	**18**	**19**
Selenium	**10**	**5,100**	NA	NA	NA	NA	**0.20**	**0.28**	mg/kg	<1.4	<1.5	<1 5	<1.5	<1.5	<1 5	<1.5	<1 5	<1.5	<1.5	<1 5	<1.5
Silver	**40**	**5,100**	**0.07**	**6.2**	NA	NA	NA	NA	mg/kg	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0
Thallium	**13**	**67**	**0.1**	**1**	NA	NA	NA	NA	mg/kg	<0.90	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0	<1 0	<1.0	<1.0	<1 0	<1.0
Vanadium	**200**	**1,000**	**18**	**90.5**	**40**	**127**	NA	NA	mg/kg	**45**	**44**	**45**	**57**	**67**	**46**	**61**	**56**	**51**	**46**	**44**	**53**
Zinc	**600**	**100,000**	**10.3**	**396**	**7**	**109**	NA	NA	mg/kg	**84**	**64**	**70**	**64**	**69**	**64**	**89**	**60**	**58**	**72**	**48**	**48**

Notes:
1- Soil ESL = Commercial/Industrial shallow soil screening level according to the California Regional Water Quality Control Board
2- PRG = Industrial Preliminary Remediation Goal according to CA EPA
3- Marrett et al. 1992. *Background Levels of Soil Trace Elements in Southern California Soils.*
4- Marrett et al. 1991. *Background Levels of soil Trace Elements In Southern California Soils.*
5- Ebasco. 1989. *WDI Final Remedial Investigation Report.*
3- mg/kg = milligrams per kilogram
4- < 1.0 = compound not detected above the laboratory specified detection limits
5- ft bgs = feet below ground surface
6- NA = compound not analyzed

TABLE 6

SOIL PHYSICAL PROPERTIES RESULTS

APC

BOREHOLE LOCATION	DEPTH (ft)	SAMPLE ORIENT.	MOISTURE CONTENT (% wt)	DENSITY		POROSITY, %Vb		TOTAL ORGANIC CARBON (mg/kg)	TOTAL PORE FLUID SATURATIONS, (% Pv)	25.0 PSI CONFINING STRESS		
				BULK (g/cc)	GRAIN (g/cc)	TOTAL	AIR FILLED			NATIVE STATE EFFECTIVE PERMEABILITY TO AIR (millidarcy)	NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (millidarcy)	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (cm/s)
B-3	1.0	Vertical	12.9	1.76	2.71	35.1	12.4	4700	64.6	80.3	0.227	2.25E-07
B-3	7.0	Vertical	15.6	1.76	2.70	34.9	8.8	6650	78.8	0.879	0.258	2.59E-07

Notes:
ft = feet
Sample orient. = sample orientation
% wt = percent by weight
g/cc = grams per cubic centimeters
%Vb = bulk volume in percent
mg/kg = milligrams per kilogram
% Pv = pore volume in percent
cm/s = centimeter per second
Moisture content was analyzed in accordance with ASTM Method D2216/API RP40
Density porosity total pore fluid saturation and native state effective permeability to air were analyzed in accordance with API Method RP40
Total organic carbon was analyzed in accordance with the Walkley-Black Method
Native state effective permeability to water and native state effective hydraulic conductivity were analyzed in accordance with ASTM Method D5084
Total porosity = no pore fluids in place all interconnected pore channels Air filled = pore channels not occupied by pore fluids
Water = 0.9981 g/cc Hydrocarbon = 0.7500 g/cc
Native State = As received with pore fluids in place
Permeability to water and conductivity measured at saturated conditions

BOREHOLE LOCATION	DEPTH (ft)	MEAN GRAIN SIZE DESCRIPTION	MEDIAN GRAIN SIZE (mm)	PARTICLE SIZE DISTRIBUTION, WT. PERCENT						
				GRAVEL	Sand Size Coarse	SAND SIZE MEDIUM	SAND SIZE FINE	SILT	CLAY	SILT & CLAY
B-3	1.00	Silt	0.029	0.00	0.00	0.00	28.59	51.48	19.93	71.41
B-3	7.00	Silt	0.034	0.00	0.00	1.32	31.41	48.48	18.79	67.27

Notes:
ft = feet
mm = millimeters
wt. percent = weight percent
particle size was analyzed in accordance with ASTM method D422/D4464M

Chemical Name	Sample ID	Equipment Blanks				Field Blanks			
		QCEB-090704	QCEB-090804	QCEB-090904	QCEB-091304	QCFB-090704	QCFB-090804	QCFB-090904	QCFB-091304
	Units / Date	9/7/2004	9/8/2004	09/09/04	09/13/04	9/7/2004	9/8/2004	09/09/04	09/13/04
VOCs									
1 1 1 2-Tetrachlorroethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 1 1-Trichloroethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 1 2 2-Tetrachloroethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 1 2-Trichloroethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 1-Dichloroethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 1-Dichloroethylene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 1-Dichloropropylene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2 3-Trichlorobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2 3-Trichloropropane	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
1 2 4-Trichlorobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2 4-Trimethylbenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2-Dibromo-3-Chloropropane (DBCP)	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
1 2-Dibromoethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2-Dichlorobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2-Dichloroethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 2-Dichloropropane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 3 5-Trimethylbenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 3-Dichloropropane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
1 4-Dichlorobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
2 2-Dichloropropane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
2-Phenylbutane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Benzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Bromobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Bromodichloromethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Bromomethane	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
Butylbenzene n-	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Carbon Tetrachloride	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
CFC-11	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
CFC-12	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
Chlorobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Chlorobromomethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Chlorodibromomethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Chloroethane	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
Chloroform	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Chloromethane	µg/L	<5.0	<5.0	< 5.0	< 5.0	<5.0	<5.0	< 5.0	< 5.0
Cis-1 2-Dichloroethene (cis 1 2-DCE)	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Cis-1 3-Dichloropropene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Cymene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Dibromomethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Dichloromethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Diisopropyl Ether	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Ethylbenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Ethyl-tert-Butyl Ether	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Hexachloro-1 3-Butadiene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Isopropylbenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
M-Dichlorobenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Methylbenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Methyl-tert-Butyl Ether	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Naphthalene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
O-Xylene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Xylene P- M-	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Propylbenzene n-	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Styrene (Monomer)	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Tert-Amyl-Methyl Ether	µg/L	<1.0	<1.0	< 5.0	< 5.0	<1.0	<1.0	< 5.0	< 5.0
Tert-Butyl Alchohol	µg/L	<5.0	<5.0	< 1.0	< 1.0	<5.0	<5.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Tetrachloroethene (PCE)	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Trans-1 2-Dichloroethene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Trans-1 3-Dichloropropene	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Tribromomethane	µg/L	<1.0	<1.0	< 1.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
Trichloroethene (TCE)	µg/L	<1.0	<1.0	< 5.0	< 5.0	<1.0	<1.0	< 5.0	< 5.0
Vinyl Chloride (VC)	µg/L	<5.0	<5.0	< 1.0	< 1.0	<5.0	<5.0	< 1.0	< 1.0
Metals									
Antimony	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Arsenic	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Barium	mg/L	**0.0085**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0 0010	<0.0010
Beryllium	mg/L	<0.040	<0.040	< 0.040	< 0.040	<0 040	<0.040	< 0.040	< 0.040
Cadmium	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Chromium	mg/L	<0 0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0 0050	<0.0050
Chromium (Hexavalent Compounds)	mg/L	<0 0020	<0.0020	< 0.0020	< 0.0020	<0.0020	<0.0020	< 0.0020	< 0.0020
Cobalt	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Copper	mg/L	**0.019**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0 0050	<0.0050
Cyanide	mg/L	<0 0200	<0.0200	< 0.0200	< 0.0200	<0.0200	<0.0200	< 0.0200	< 0.0200
Lead	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Mercury	mg/L	<0 0007	<0.0007	< 0.0007	< 0.0007	<0.0007	<0.0007	< 0.0007	< 0.0007
Molybdenum	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Nickel	mg/L	**0.019**	**0.0016**	<0.0010	<0.0010	<0.0010	<0.0010	<0 0010	<0.0010
Selenium	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Silver	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Thallium	mg/L	<0 0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Vanadium (Fume or Dust)	mg/L	**0.013**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0 0020	<0.0020
Zinc	mg/L	**0.014**	<0.010	<0.010	<0 010	<0 010	<0.010	<0.010	<0.010
Petroleum Hydrocarbons									
HC<C8	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C8-C9	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C9-C10	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C10-C11	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C11-C12	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C12-C14	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C14-C16	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C16-C18	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C18-C20	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C20-C24	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C24-C28	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC C28-C32	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC >C32	mg/L	<0.010	<0.010	< 0.010	< 0.010	<0 010	<0.010	< 0.010	< 0.010
HC Extractable Hydrocarbons C7-C36	mg/L	<0.050	<0.050	< 0.050	< 0.050	<0 050	<0.050	< 0.050	< 0.050

Notes:

1- mg/L = milligrams per liter

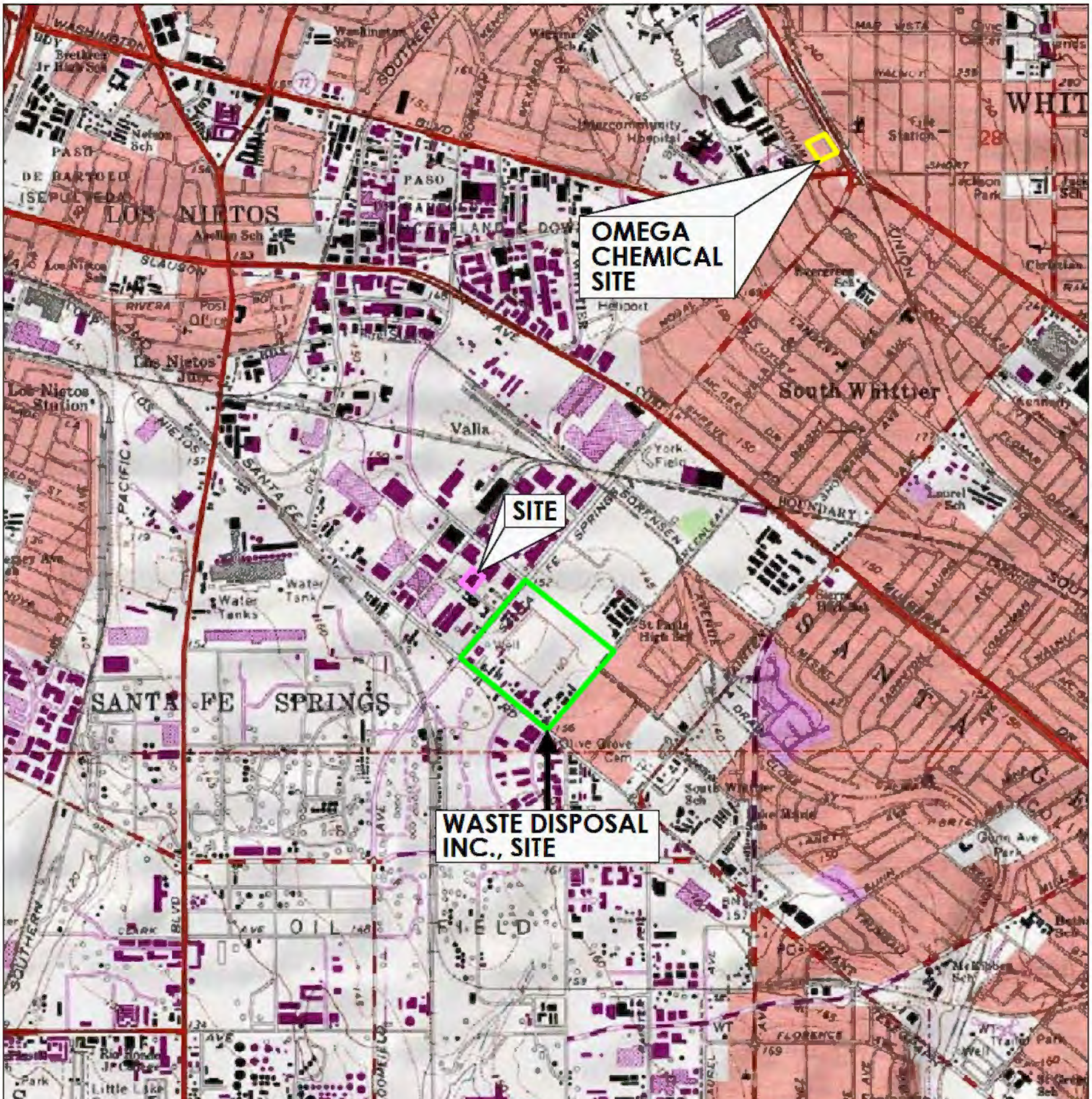
2- µg/L = micrograms per liter

3- < 1.0 = compound not detected above the laboratory specified detection limits

4- HC - Petroleum Hydrocarbons

5- VOC = Volatile Organic Compounds

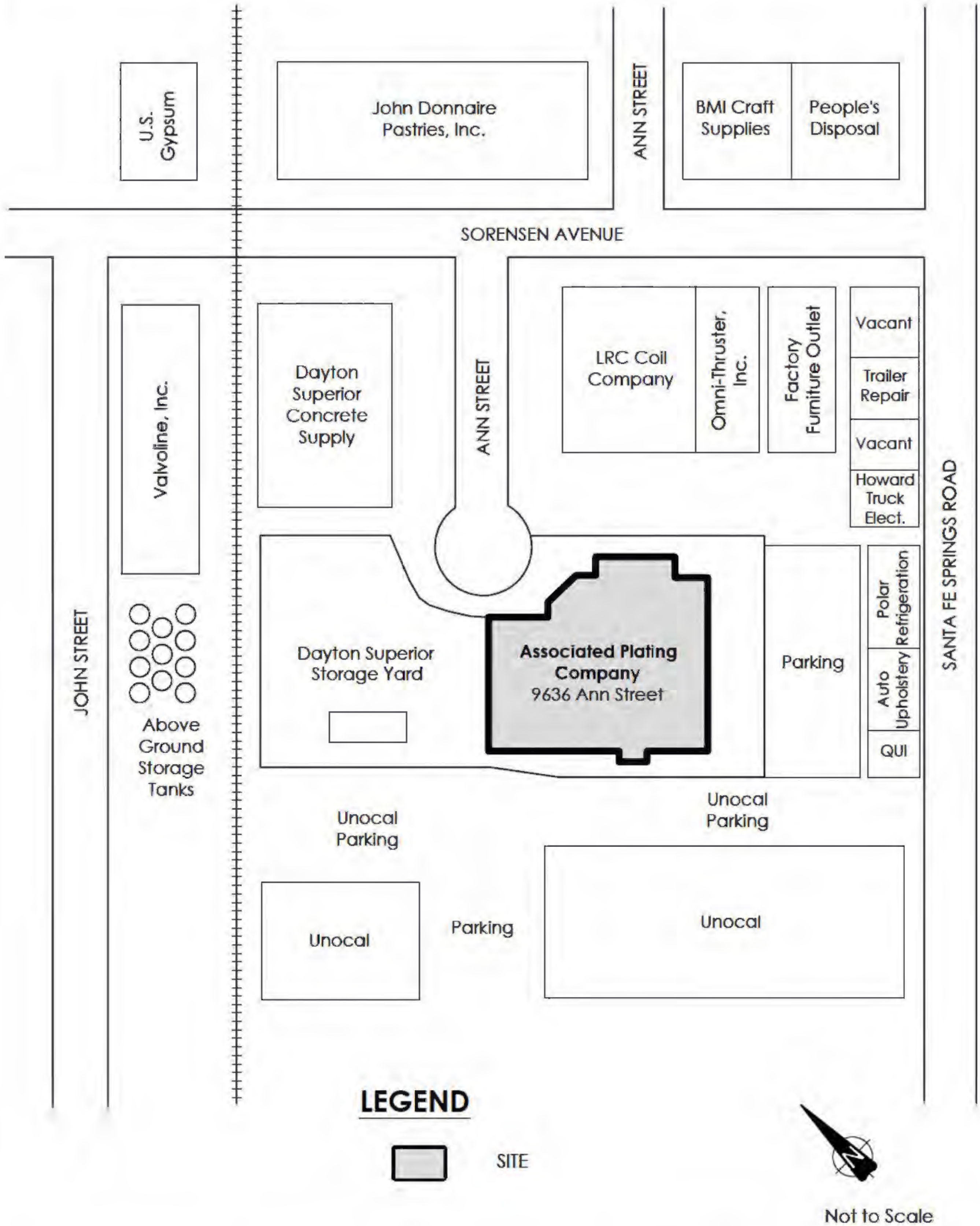
FIGURES



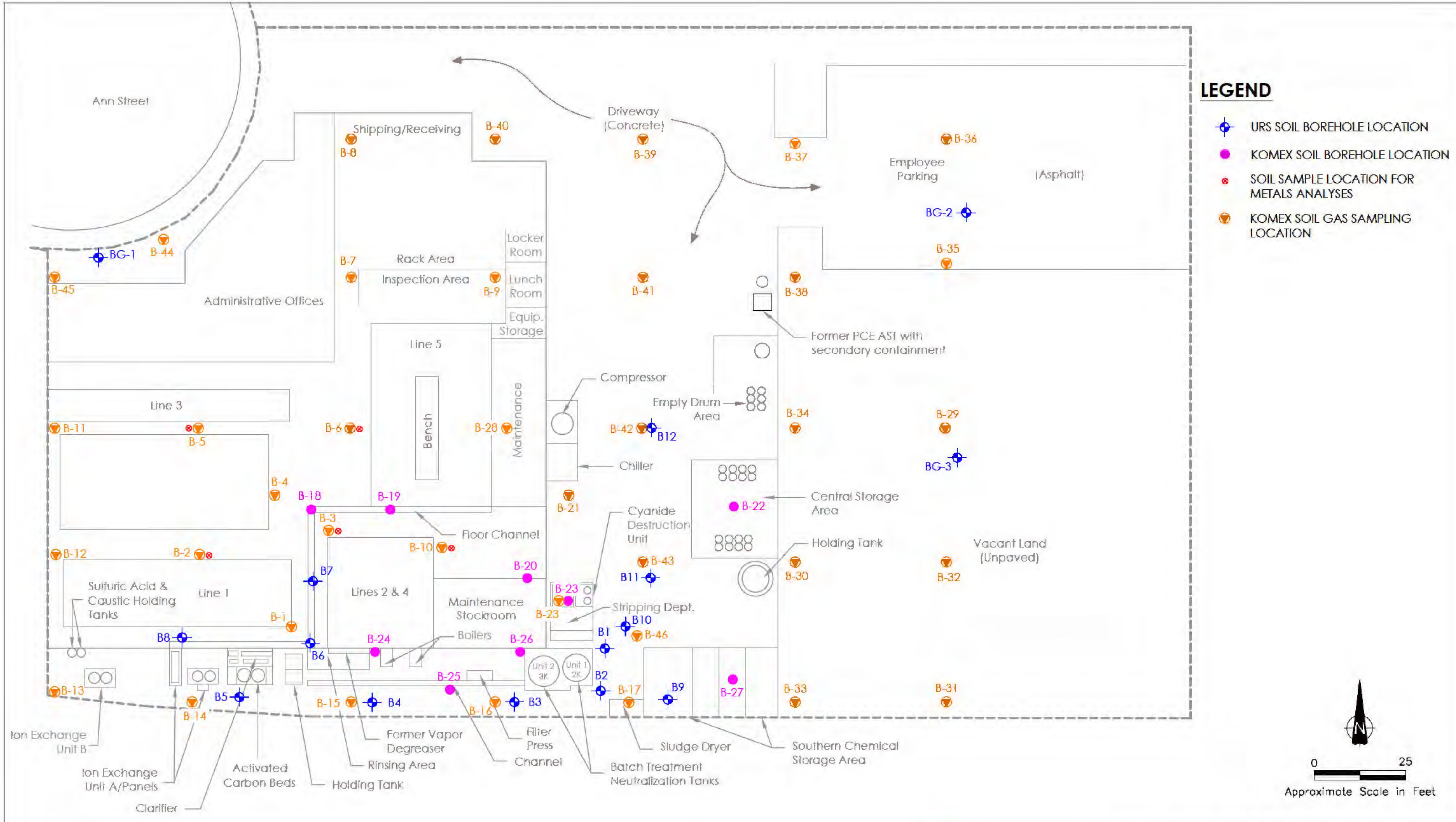
Source: United States Geological Survey, "South Whittier," 7.5 Minute Quadrangle, 1998

0 2,000
Approximate Scale in Feet

KOMEX	ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
		MA	H0287A
	SITE LOCATION MAP	1	



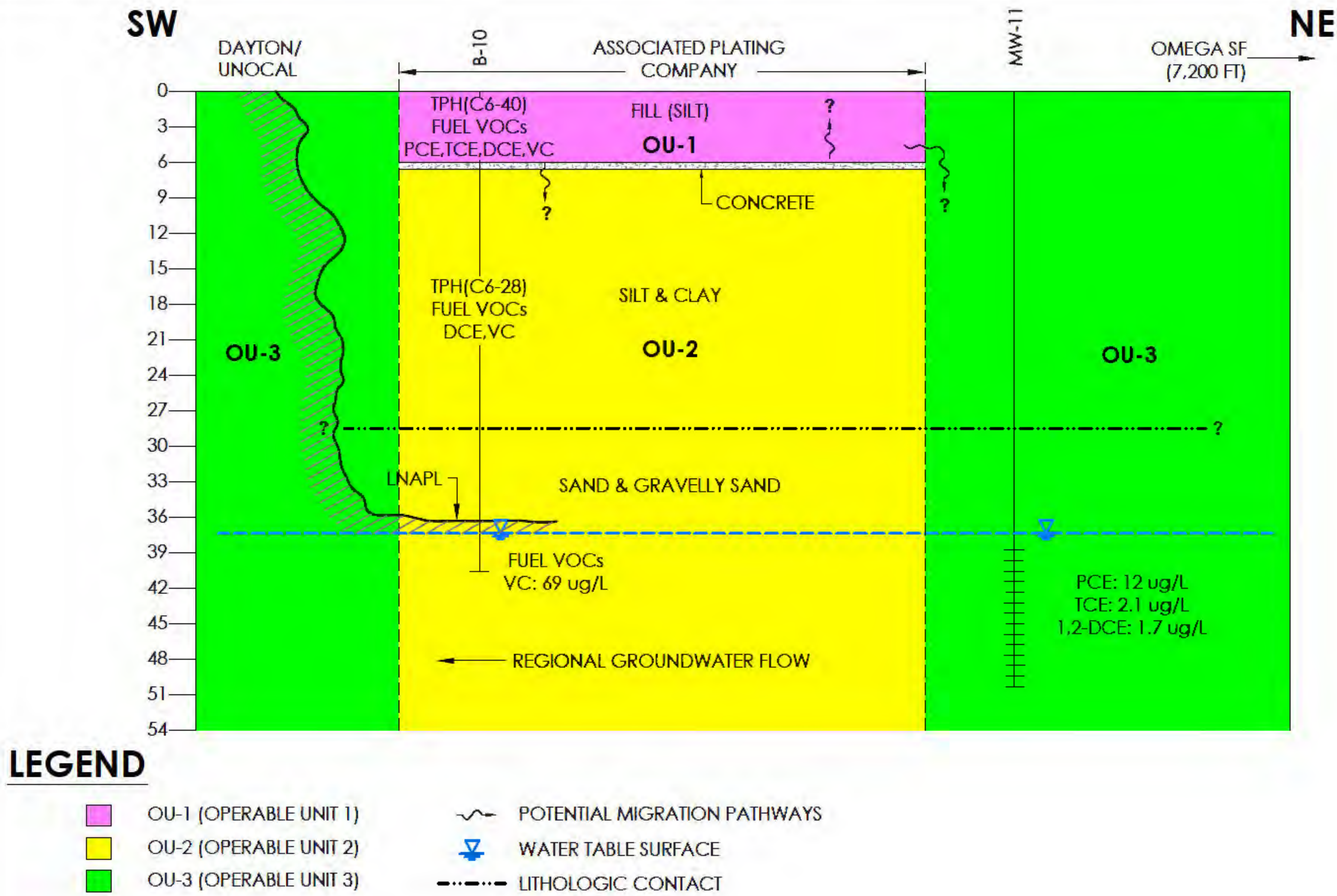
KOMEX	ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
		MA	H0287A
	SITE VICINITY MAP		2



KOMEX

PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
SITE PLAN SHOWING BOREHOLE LOCATIONS	MA	H0287A
	3	

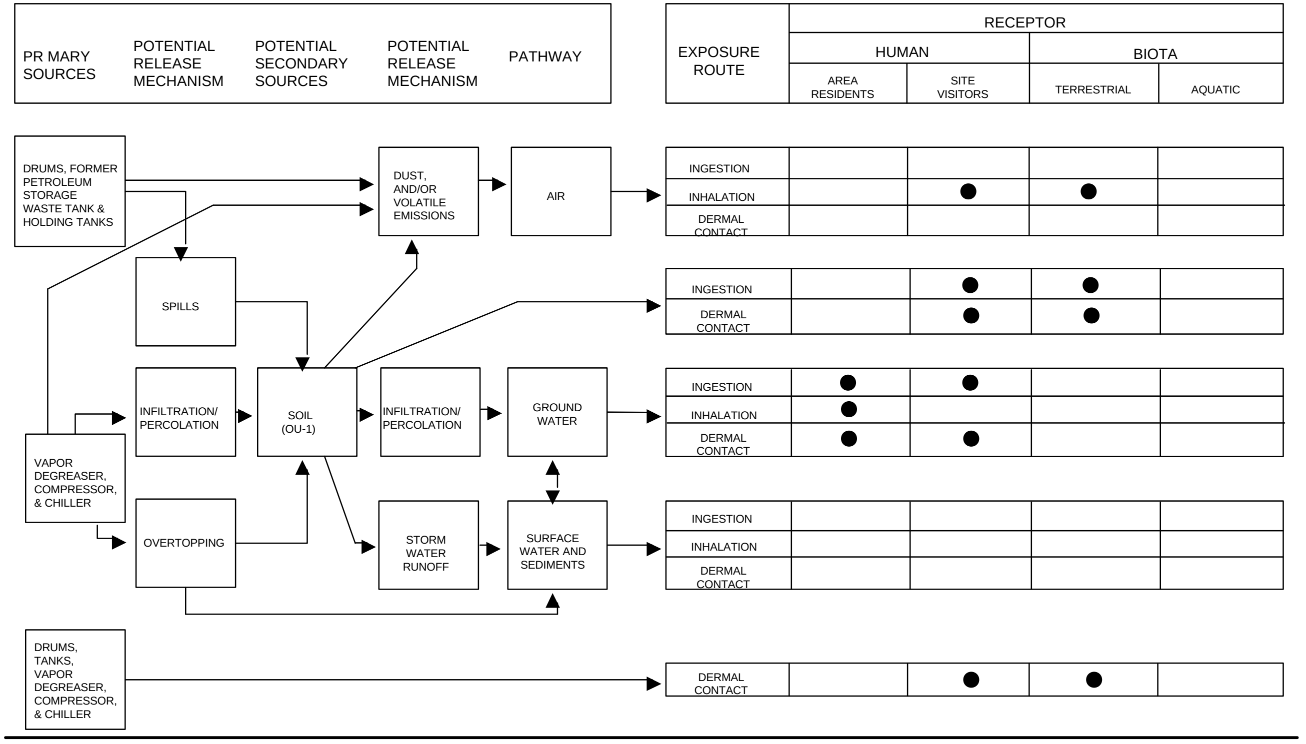


KOMEX

PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

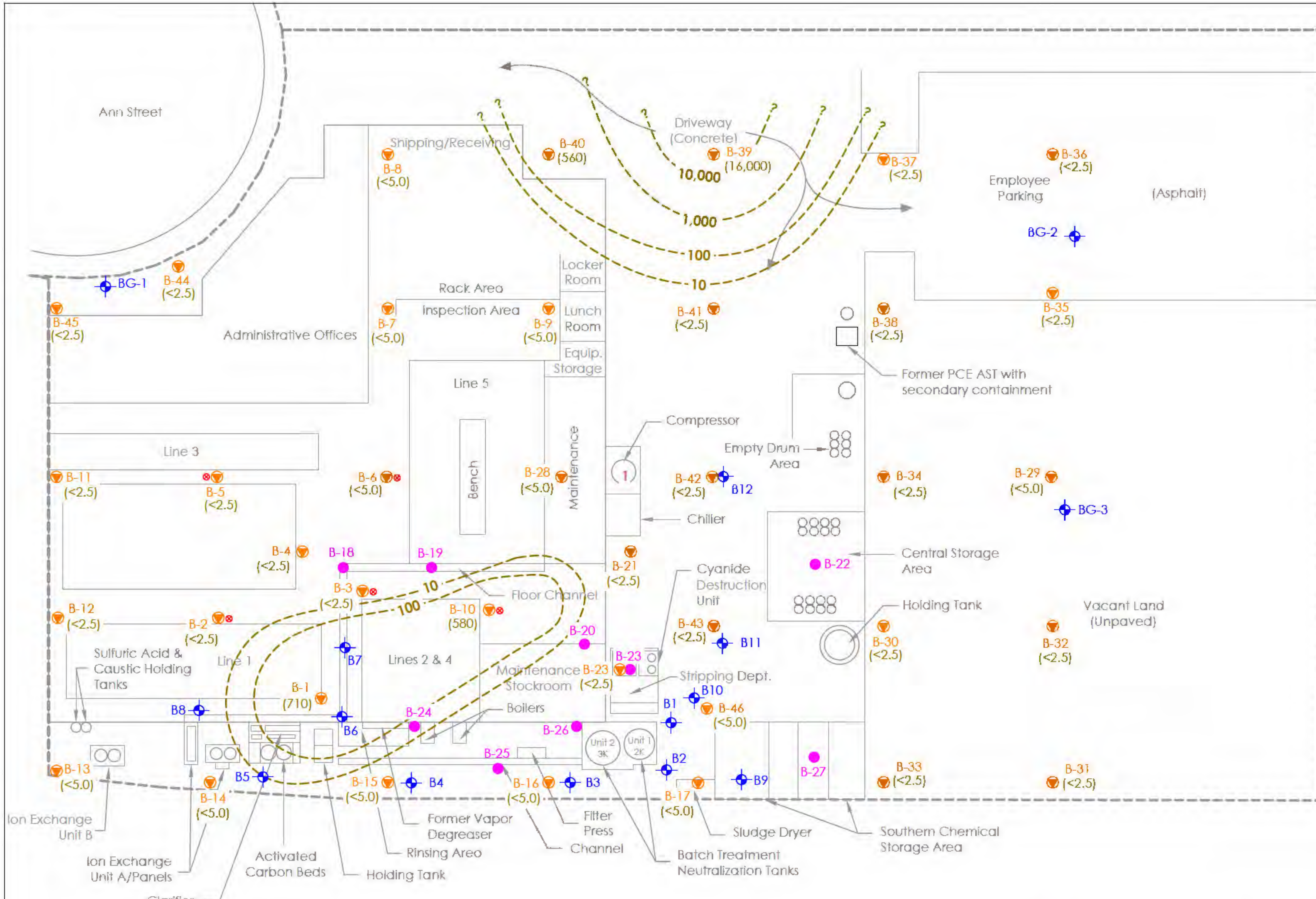
ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
SITE CONCEPTUAL MODEL AND PROPOSED OPERABLE UNITS	MA	H0287A
		4A

Figure 4B: Site Conceptual Model Diagram and Potential Receptors (OU-1)



Legend:

●	Pathway is considered feasible
	Pathway is not considered feasible



LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES (IN SOIL GAS BOREHOLE)
- KOMEX SOIL GAS SAMPLING LOCATION
- 10 TPH ISOCONCENTRATION CONTOUR
- (710) TPH CONCENTRATION IN MICROGRAMS PER LITER (μg/l)
- (<5.0) COMPOUND NOT DETECTED AT SPECIFIED DETECTION LIMIT

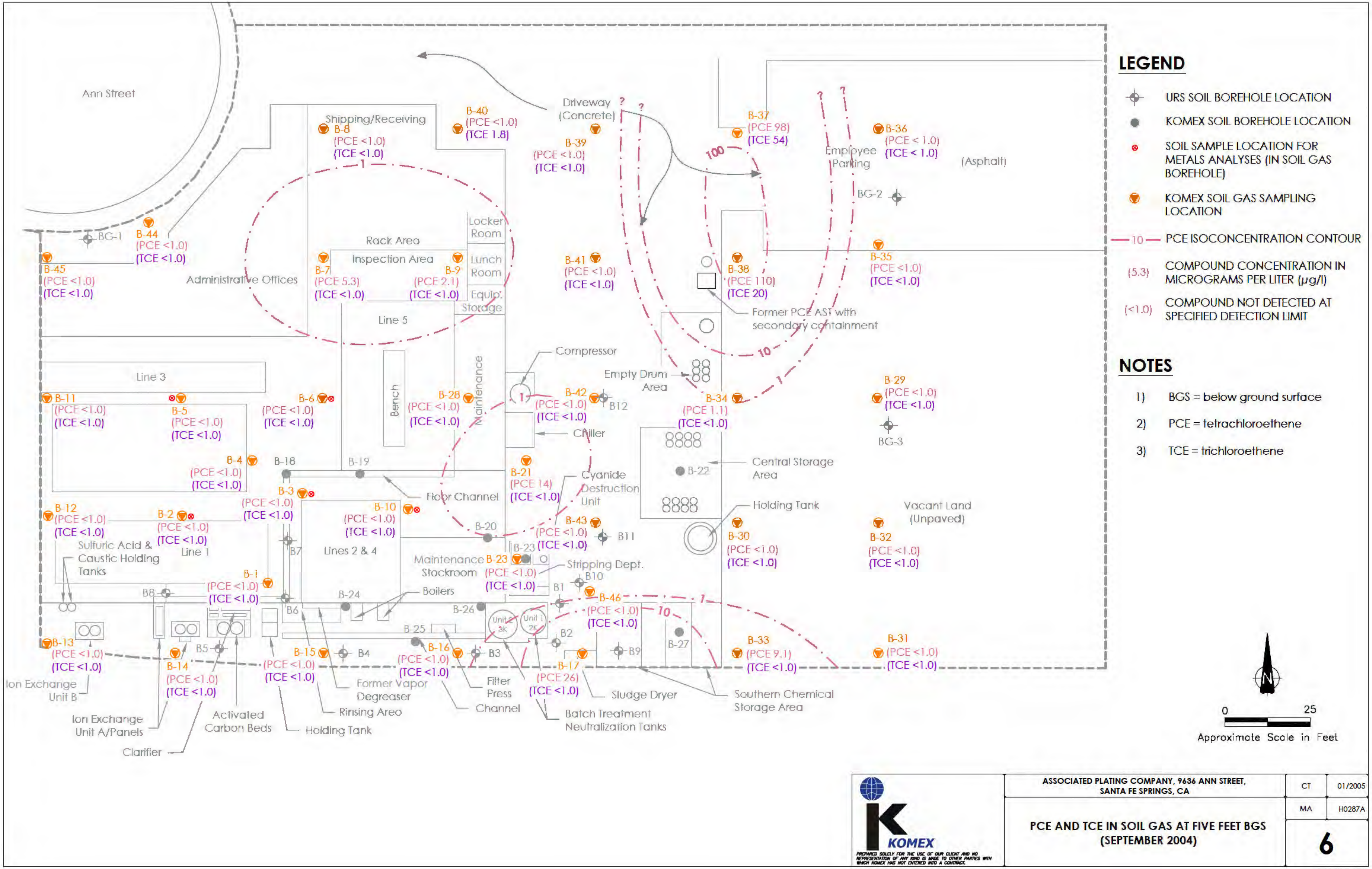
NOTES

1) BGS = below ground surface
2) TPH = total petroleum hydrocarbon

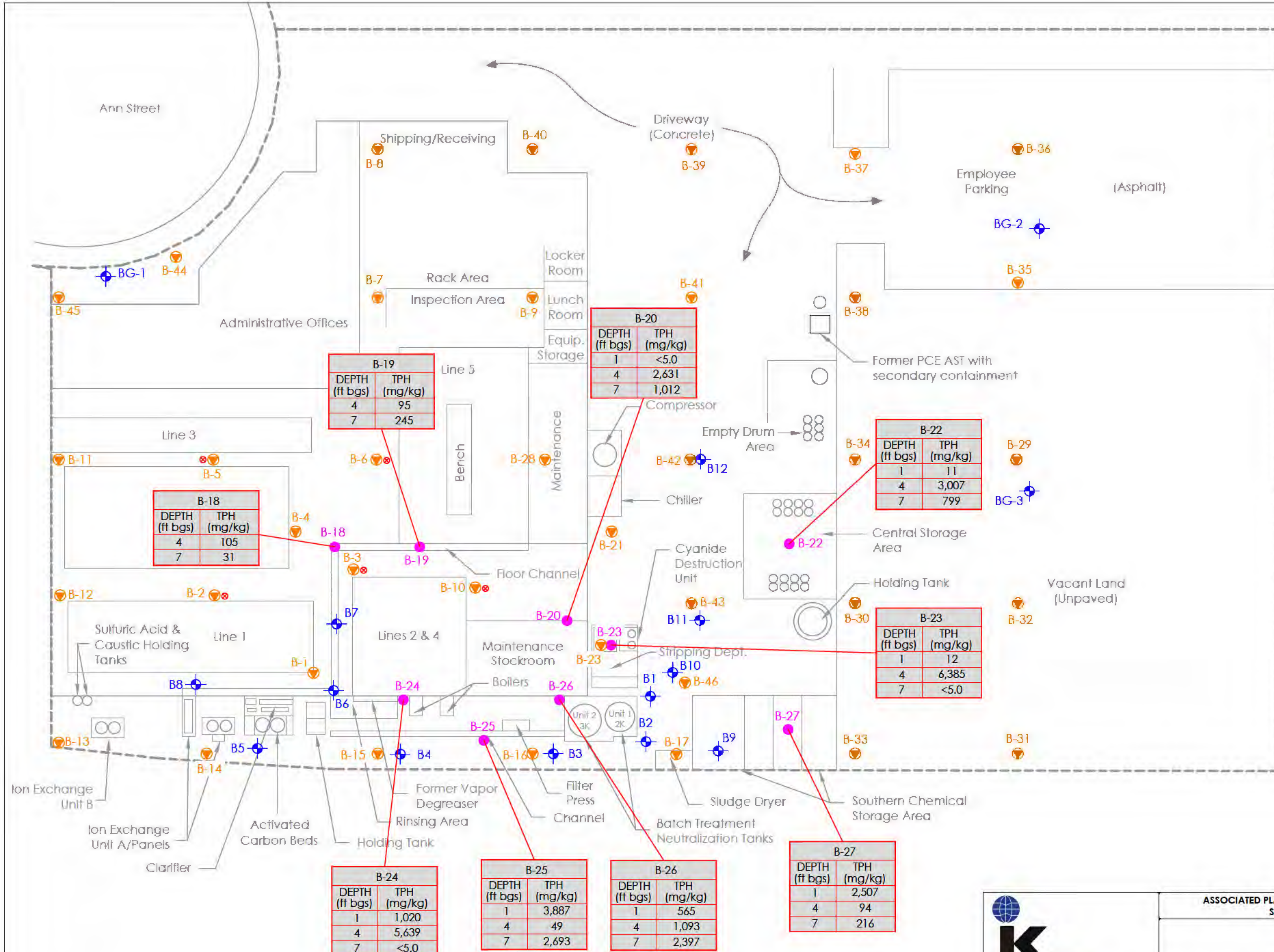
KOMEX

PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA		CT	01/2005
TPH IN SOIL GAS AT FIVE FEET BGS (SEPTEMBER 2004)		MA	H0287A
		5	



PCE AND TCE IN SOIL GAS AT FIVE FEET BGS (SEPTEMBER 2004)



B-18

DEPTH (ft bgs)	TPH (mg/kg)
4	105
7	31

B-19

DEPTH (ft bgs)	TPH (mg/kg)
4	95
7	245

B-20

DEPTH (ft bgs)	TPH (mg/kg)
1	<5.0
4	2,631
7	1,012

B-22

DEPTH (ft bgs)	TPH (mg/kg)
1	11
4	3,007
7	799

B-23

DEPTH (ft bgs)	TPH (mg/kg)
1	12
4	6,385
7	<5.0

B-24

DEPTH (ft bgs)	TPH (mg/kg)
1	1,020
4	5,639
7	<5.0

B-25

DEPTH (ft bgs)	TPH (mg/kg)
1	3,887
4	49
7	2,693

B-26

DEPTH (ft bgs)	TPH (mg/kg)
1	565
4	1,093
7	2,397

B-27

DEPTH (ft bgs)	TPH (mg/kg)
1	2,507
4	94
7	216

LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES
- KOMEX SOIL GAS SAMPLING LOCATION
- <5.0 COMPOUND WAS NOT DETECTED AT SPECIFIED DETECTION LIMIT

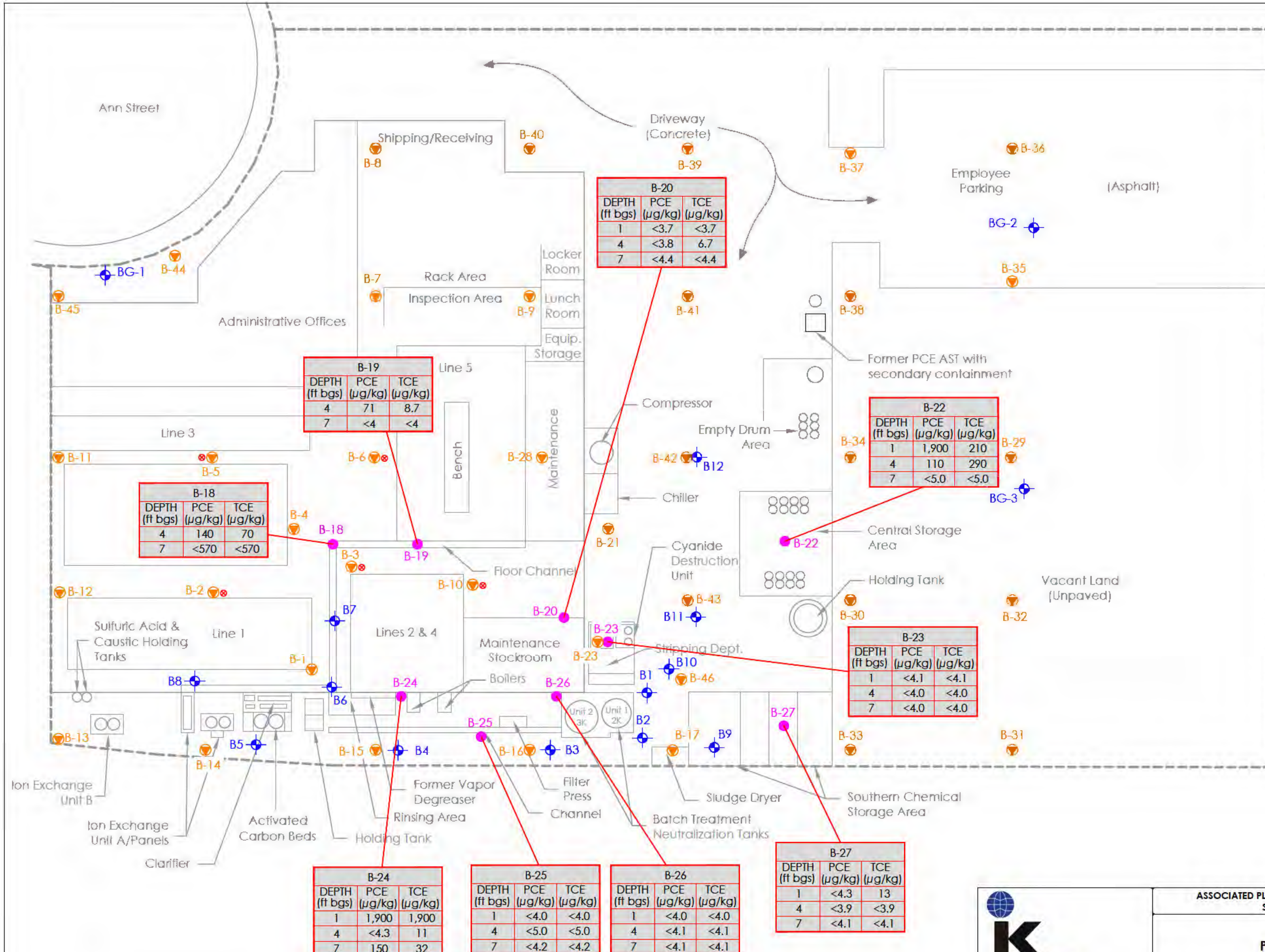
NOTES

1) ft bgs = feet below ground surface
2) TPH = total petroleum hydrocarbons
3) mg/kg = milligrams per kilogram

KOMEX

PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
	MA	H0287A
TPH IN SOIL (SEPTEMBER 2004)	7	



B-20		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<3.7	<3.7
4	<3.8	6.7
7	<4.4	<4.4

B-19		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
4	71	8.7
7	<4	<4

B-18		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
4	140	70
7	<570	<570

B-22		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	1,900	210
4	110	290
7	<5.0	<5.0

B-23		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.1	<4.1
4	<4.0	<4.0
7	<4.0	<4.0

B-24		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	1,900	1,900
4	<4.3	11
7	150	32

B-25		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.0	<4.0
4	<5.0	<5.0
7	<4.2	<4.2

B-26		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.0	<4.0
4	<4.1	<4.1
7	<4.1	<4.1

B-27		
DEPTH (ft bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.3	13
4	<3.9	<3.9
7	<4.1	<4.1

LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES
- KOMEX SOIL GAS SAMPLING LOCATION
- <4.0 COMPOUND WAS NOT DETECTED AT SPECIFIED DETECTION LIMIT

NOTES

1) ft bgs = feet below ground surface
2) PCE = tetrachloroethene
3) TCE = trichloroethene
4) (µg/kg) = micrograms per kilogram

0 25
Approximate Scale in Feet

KOMEX

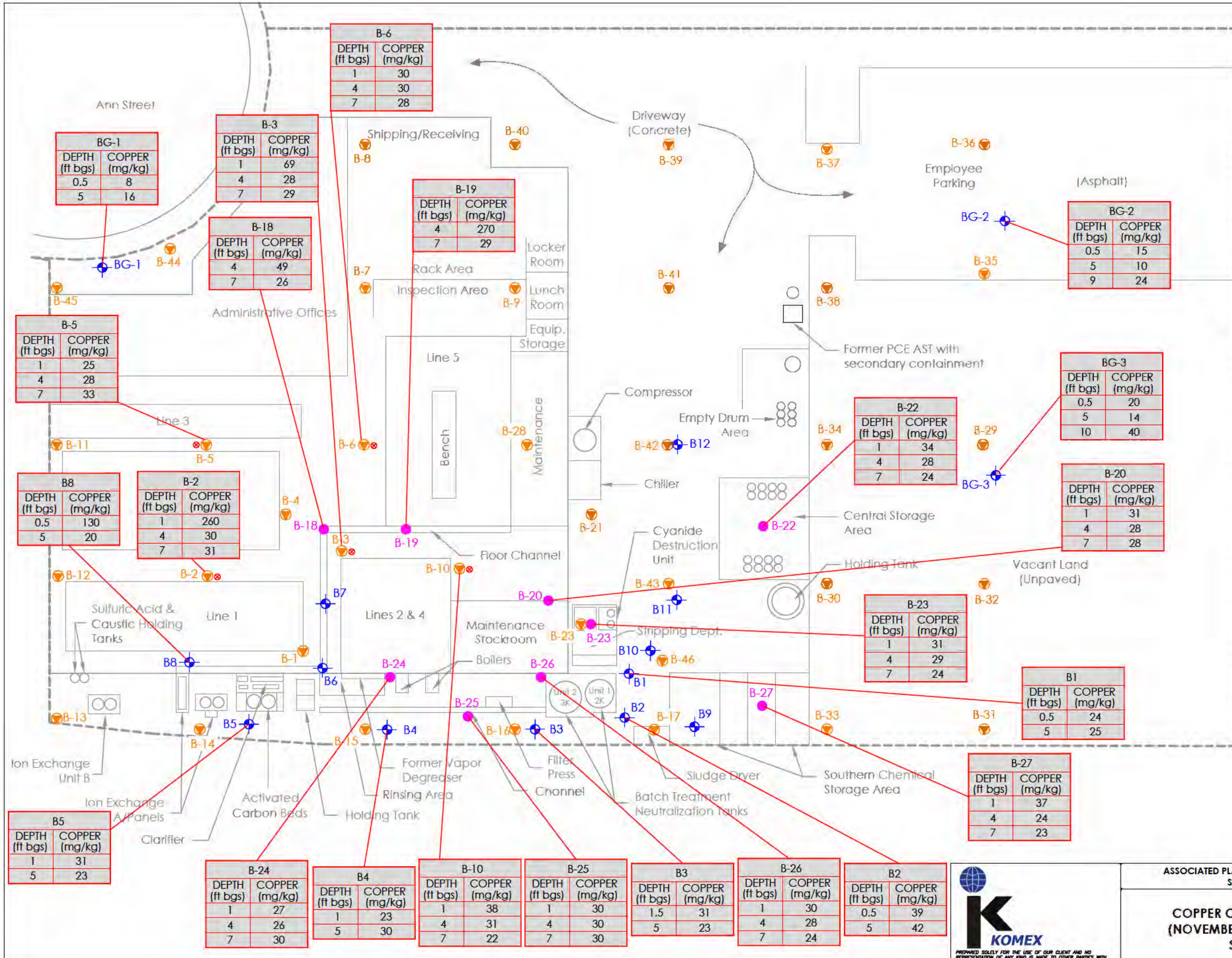
PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA

PCE & TCE IN SOIL (SEPTEMBER 2004)

CT 01/2005
MA H0287A

8



B-6

DEPTH (ft bgs)	COPPER (mg/kg)
1	30
4	30
7	28

BG-1

DEPTH (ft bgs)	COPPER (mg/kg)
0.5	8
5	16

B-3

DEPTH (ft bgs)	COPPER (mg/kg)
1	69
4	28
7	29

B-19

DEPTH (ft bgs)	COPPER (mg/kg)
4	270
7	29

B-18

DEPTH (ft bgs)	COPPER (mg/kg)
4	49
7	26

B-5

DEPTH (ft bgs)	COPPER (mg/kg)
1	25
4	28
7	33

B8

DEPTH (ft bgs)	COPPER (mg/kg)
0.5	130
5	20

B-2

DEPTH (ft bgs)	COPPER (mg/kg)
1	260
4	30
7	31

B5

DEPTH (ft bgs)	COPPER (mg/kg)
1	31
5	23

B-24

DEPTH (ft bgs)	COPPER (mg/kg)
1	27
4	26
7	30

B4

DEPTH (ft bgs)	COPPER (mg/kg)
1	23
5	30

B-10

DEPTH (ft bgs)	COPPER (mg/kg)
1	38
4	31
7	22

B-25

DEPTH (ft bgs)	COPPER (mg/kg)
1	30
4	30
7	30

B3

DEPTH (ft bgs)	COPPER (mg/kg)
1.5	31
5	23

B-26

DEPTH (ft bgs)	COPPER (mg/kg)
1	30
4	28
7	24

B2

DEPTH (ft bgs)	COPPER (mg/kg)
0.5	39
5	42

BG-2

DEPTH (ft bgs)	COPPER (mg/kg)
0.5	15
5	10
9	24

BG-3

DEPTH (ft bgs)	COPPER (mg/kg)
0.5	20
5	14
10	40

B-22

DEPTH (ft bgs)	COPPER (mg/kg)
1	34
4	28
7	24

B-20

DEPTH (ft bgs)	COPPER (mg/kg)
1	31
4	28
7	28

B-23

DEPTH (ft bgs)	COPPER (mg/kg)
1	31
4	29
7	24

B1

DEPTH (ft bgs)	COPPER (mg/kg)
0.5	24
5	25

B-27

DEPTH (ft bgs)	COPPER (mg/kg)
1	37
4	24
7	23

LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES
- KOMEX SOIL GAS SAMPLING LOCATION
- <5.0 COMPOUND WAS NOT DETECTED AT SPECIFIED DETECTION LIMIT

NOTES

1) ft bgs = feet below ground surface

2) mg/kg = milligrams per kilogram

KOMEX

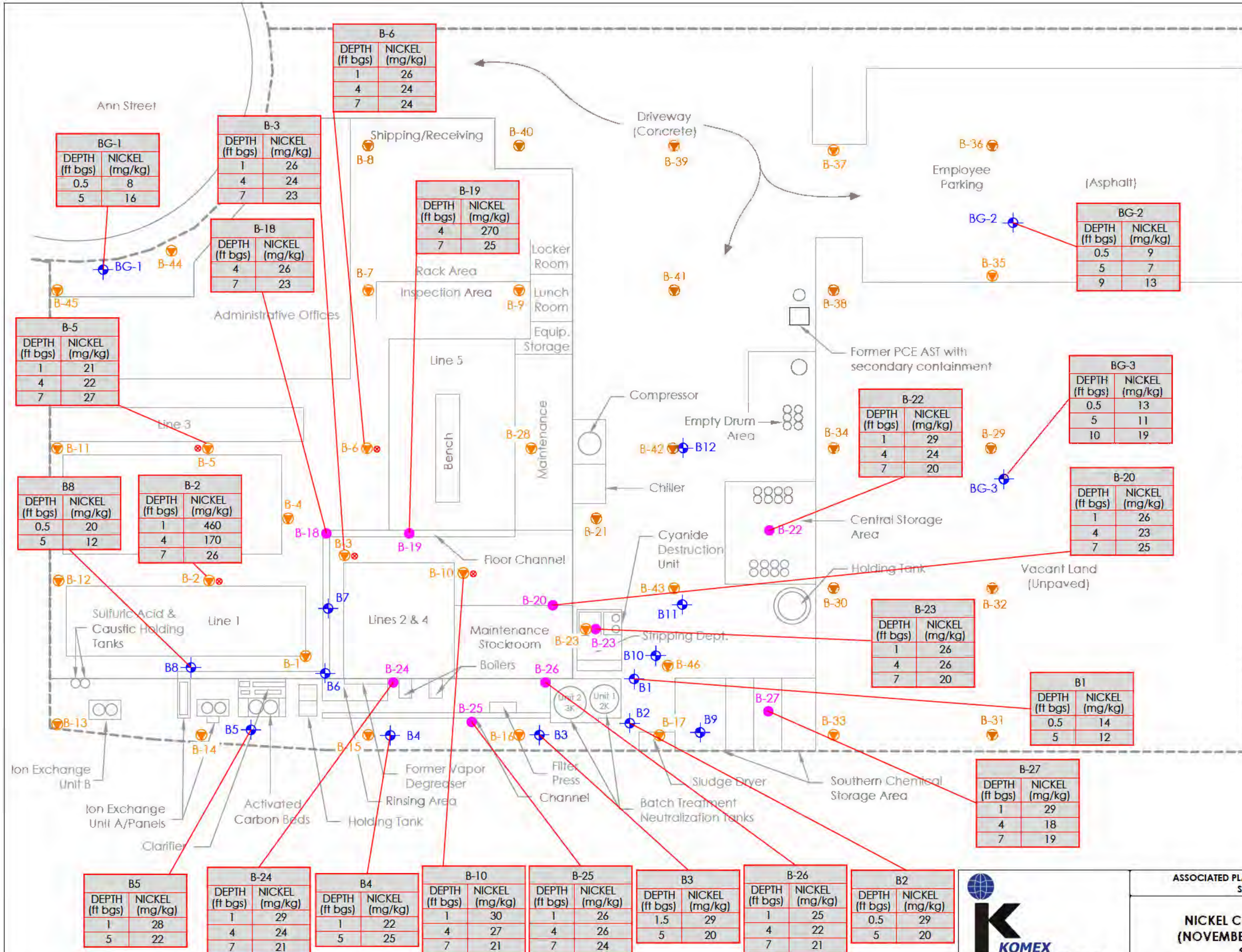
PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA

COPPER CONCENTRATIONS IN SOIL (NOVEMBER 2001, FEBRUARY 2002, & SEPTEMBER 2004)

CT	01/2005
MA	H0287A

9



B-6

DEPTH (ft bgs)	NICKEL (mg/kg)
1	26
4	24
7	24

BG-1

DEPTH (ft bgs)	NICKEL (mg/kg)
0.5	8
5	16

B-3

DEPTH (ft bgs)	NICKEL (mg/kg)
1	26
4	24
7	23

B-19

DEPTH (ft bgs)	NICKEL (mg/kg)
4	270
7	25

B-18

DEPTH (ft bgs)	NICKEL (mg/kg)
4	26
7	23

B-5

DEPTH (ft bgs)	NICKEL (mg/kg)
1	21
4	22
7	27

B8

DEPTH (ft bgs)	NICKEL (mg/kg)
0.5	20
5	12

B-2

DEPTH (ft bgs)	NICKEL (mg/kg)
1	460
4	170
7	26

BG-2

DEPTH (ft bgs)	NICKEL (mg/kg)
0.5	9
5	7
9	13

B-22

DEPTH (ft bgs)	NICKEL (mg/kg)
1	29
4	24
7	20

BG-3

DEPTH (ft bgs)	NICKEL (mg/kg)
0.5	13
5	11
10	19

B-20

DEPTH (ft bgs)	NICKEL (mg/kg)
1	26
4	23
7	25

B-23

DEPTH (ft bgs)	NICKEL (mg/kg)
1	26
4	26
7	20

B1

DEPTH (ft bgs)	NICKEL (mg/kg)
0.5	14
5	12

B-27

DEPTH (ft bgs)	NICKEL (mg/kg)
1	29
4	18
7	19

B5

DEPTH (ft bgs)	NICKEL (mg/kg)
1	28
5	22

B-24

DEPTH (ft bgs)	NICKEL (mg/kg)
1	29
4	24
7	21

B4

DEPTH (ft bgs)	NICKEL (mg/kg)
1	22
5	25

B-10

DEPTH (ft bgs)	NICKEL (mg/kg)
1	30
4	27
7	21

B-25

DEPTH (ft bgs)	NICKEL (mg/kg)
1	26
4	26
7	24

B3

DEPTH (ft bgs)	NICKEL (mg/kg)
1.5	29
5	20

B-26

DEPTH (ft bgs)	NICKEL (mg/kg)
1	25
4	22
7	21

B2

DEPTH (ft bgs)	NICKEL (mg/kg)
0.5	29
5	20

LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES
- KOMEX SOIL GAS SAMPLING LOCATION
- <5.0 COMPOUND WAS NOT DETECTED AT SPECIFIED DETECTION LIMIT

NOTES

1) ft bgs = feet below ground surface

2) mg/kg = milligrams per kilogram

KOMEX

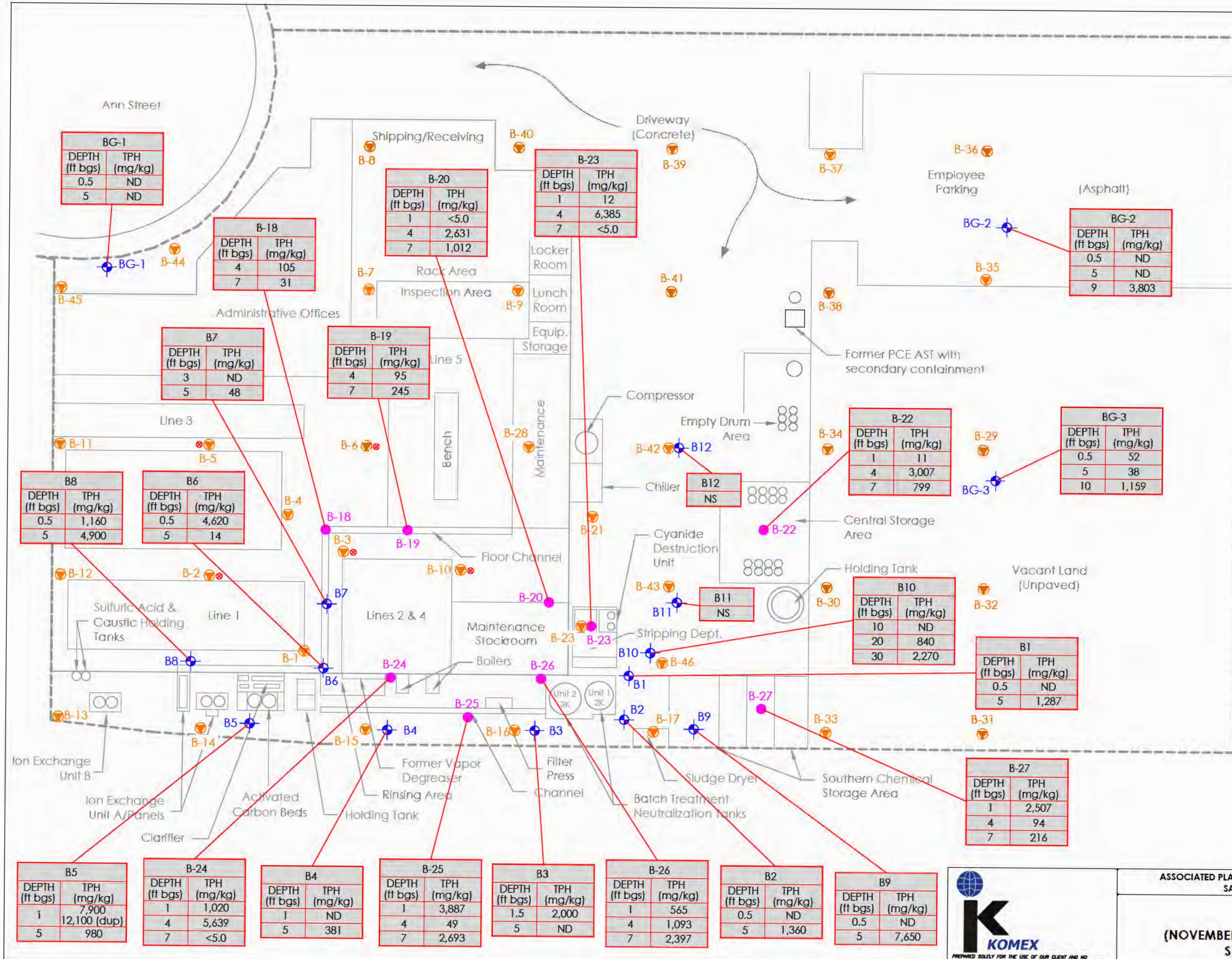
PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA

NICKEL CONCENTRATIONS IN SOIL (NOVEMBER 2001, FEBRUARY 2002, & SEPTEMBER 2004)

CT	01/2005
MA	H0287A

10



BG-1

DEPTH (ft bgs)	TPH (mg/kg)
0.5	ND
5	ND

B-18

DEPTH (ft bgs)	TPH (mg/kg)
4	105
7	31

B-20

DEPTH (ft bgs)	TPH (mg/kg)
1	<5.0
4	2,631
7	1,012

B-23

DEPTH (ft bgs)	TPH (mg/kg)
1	12
4	6,385
7	<5.0

BG-2

DEPTH (ft bgs)	TPH (mg/kg)
0.5	ND
5	ND
9	3,803

B7

DEPTH (ft bgs)	TPH (mg/kg)
3	ND
5	48

B-19

DEPTH (ft bgs)	TPH (mg/kg)
4	95
7	245

B-22

DEPTH (ft bgs)	TPH (mg/kg)
1	11
4	3,007
7	799

BG-3

DEPTH (ft bgs)	TPH (mg/kg)
0.5	52
5	38
10	1,159

B8

DEPTH (ft bgs)	TPH (mg/kg)
0.5	1,160
5	4,900

B6

DEPTH (ft bgs)	TPH (mg/kg)
0.5	4,620
5	14

B12

NS	

B11

NS	

B10

DEPTH (ft bgs)	TPH (mg/kg)
10	ND
20	840
30	2,270

B1

DEPTH (ft bgs)	TPH (mg/kg)
0.5	ND
5	1,287

B-27

DEPTH (ft bgs)	TPH (mg/kg)
1	2,507
4	94
7	216

B5

DEPTH (ft bgs)	TPH (mg/kg)
1	7,900 12,100 (dup)
5	980

B-24

DEPTH (ft bgs)	TPH (mg/kg)
1	1,020
4	5,639
7	<5.0

B4

DEPTH (ft bgs)	TPH (mg/kg)
1	ND
5	381

B-25

DEPTH (ft bgs)	TPH (mg/kg)
1	3,887
4	49
7	2,693

B3

DEPTH (ft bgs)	TPH (mg/kg)
1.5	2,000
5	ND

B-26

DEPTH (ft bgs)	TPH (mg/kg)
1	565
4	1,093
7	2,397

B2

DEPTH (ft bgs)	TPH (mg/kg)
0.5	ND
5	1,360

B9

DEPTH (ft bgs)	TPH (mg/kg)
0.5	ND
5	7,650

LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES
- KOMEX SOIL GAS SAMPLING LOCATION
- <5.0 COMPOUND WAS NOT DETECTED AT SPECIFIED DETECTION LIMIT

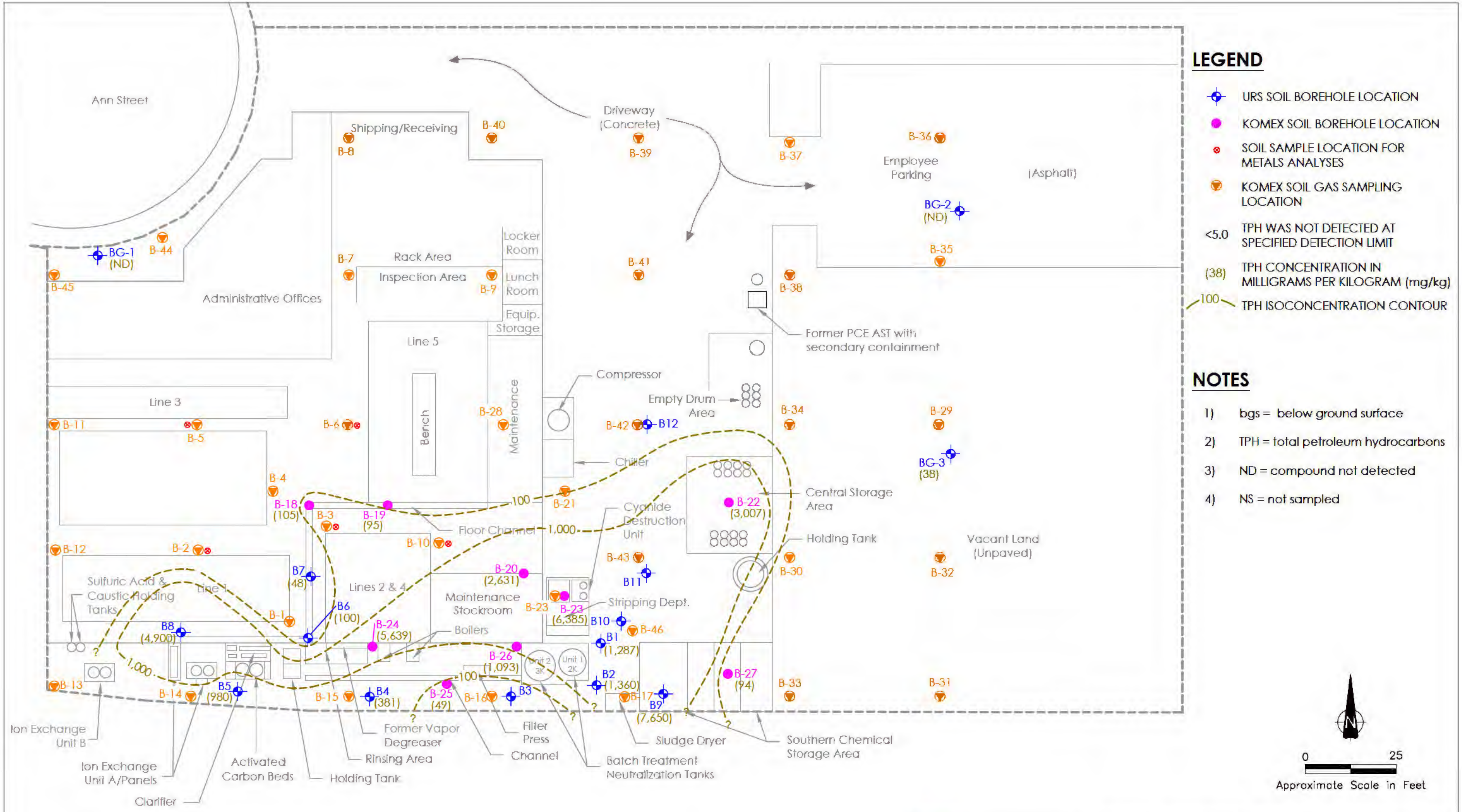
NOTES

1) ft bgs = feet below ground surface
2) TPH = total petroleum hydrocarbons
3) mg/kg = milligrams per kilogram
4) dup = duplicate
5) ND = compound not detected
6) NS = not sampled

KOMEX

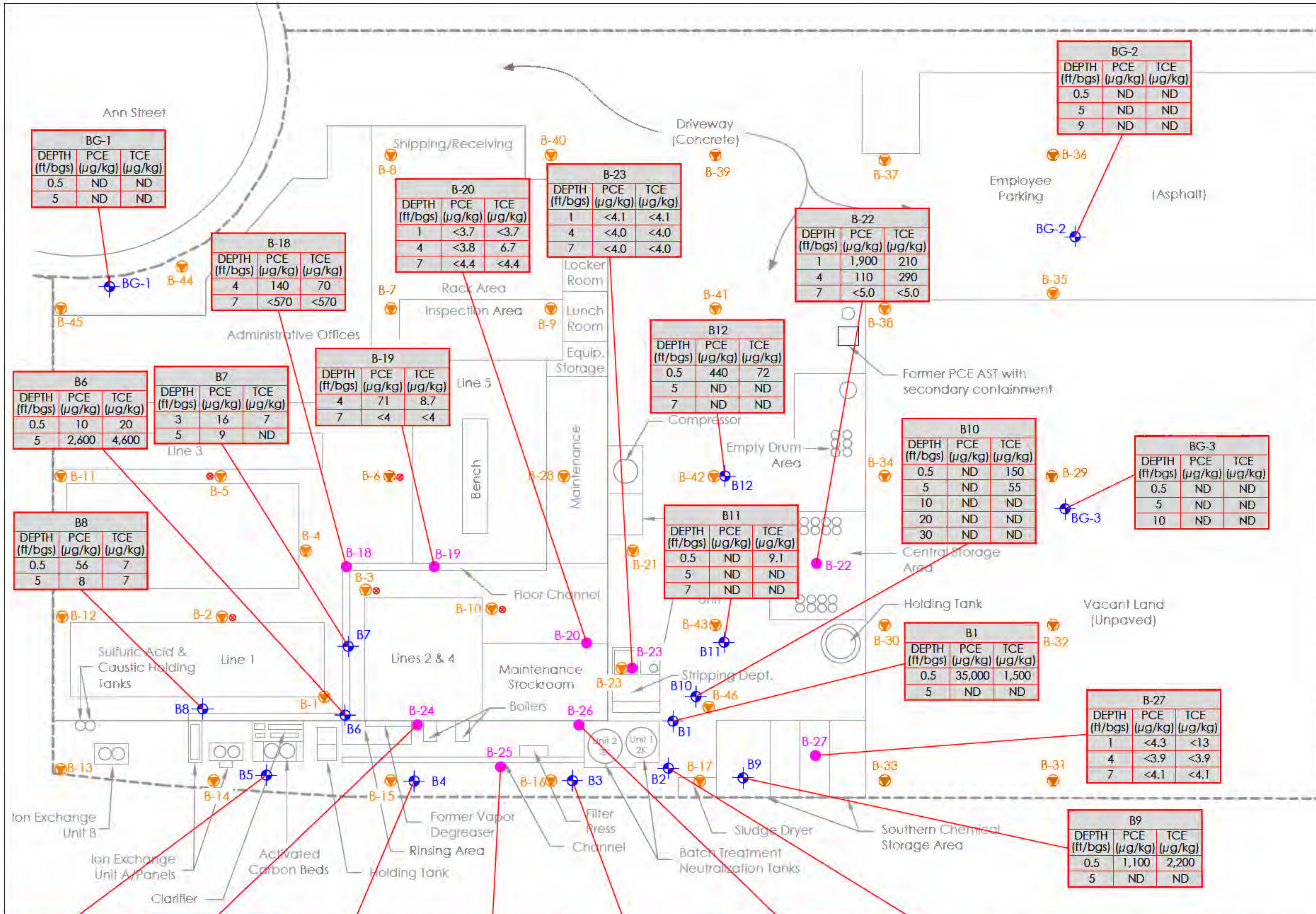
PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
TPH IN SOIL (NOVEMBER 2001, FEBRUARY 2002, & SEPTEMBER 2004)	MA	H0287A
		11



KOMEX	ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA	CT	01/2005
	TPH IN SOIL AT 4 + 5 FEET BGS (NOVEMBER 2001, FEBRUARY 2002, & SEPTEMBER 2004)	MA	H0287A
			12

PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.



BG-1

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	ND	ND
5	ND	ND

B-18

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
4	140	70
7	<570	<570

B-20

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<3.7	<3.7
4	<3.8	6.7
7	<4.4	<4.4

B-23

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.1	<4.1
4	<4.0	<4.0
7	<4.0	<4.0

B-22

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	1,900	210
4	110	290
7	<5.0	<5.0

BG-2

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	ND	ND
5	ND	ND
9	ND	ND

B12

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	440	72
5	ND	ND
7	ND	ND

B-19

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
4	71	8.7
7	<4	<4

B6

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	10	20
5	2,600	4,600

B7

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
3	16	7
5	9	ND

B8

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	56	7
5	8	7

B10

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	ND	150
5	ND	55
10	ND	ND
20	ND	ND
30	ND	ND

BG-3

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	ND	ND
5	ND	ND
10	ND	ND

B11

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	ND	9.1
5	ND	ND
7	ND	ND

B1

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	35,000	1,500
5	ND	ND

B-27

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.3	<13
4	<3.9	<3.9
7	<4.1	<4.1

B9

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	1,100	2,200
5	ND	ND

B5

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
3	ND	ND
5	ND	ND

B-24

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	1,900	1,900
4	<4.3	11
7	150	32

B4

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	ND	ND
5	ND	ND

B-25

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.0	<4.0
4	<5.0	<5.0
7	<4.2	<4.2

B3

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1.5	ND	ND
5	ND	ND

B-26

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
1	<4.0	<4.0
4	<4.1	<4.1
7	<4.1	<4.1

B2

DEPTH (ft/bgs)	PCE (µg/kg)	TCE (µg/kg)
0.5	4,100	2,800
5	85	12

LEGEND

- URS SOIL BOREHOLE LOCATION
- KOMEX SOIL BOREHOLE LOCATION
- SOIL SAMPLE LOCATION FOR METALS ANALYSES
- KOMEX SOIL GAS SAMPLING LOCATION
- <4.1 COMPOUND WAS NOT DETECTED AT SPECIFIED DETECTION LIMIT

NOTES

1) ft bgs = feet below ground surface
2) PCE = tetrachloroethene
3) TCE = trichloroethene
4) µg/kg = micrograms per kilogram
5) ND = compound not detected

KOMEX

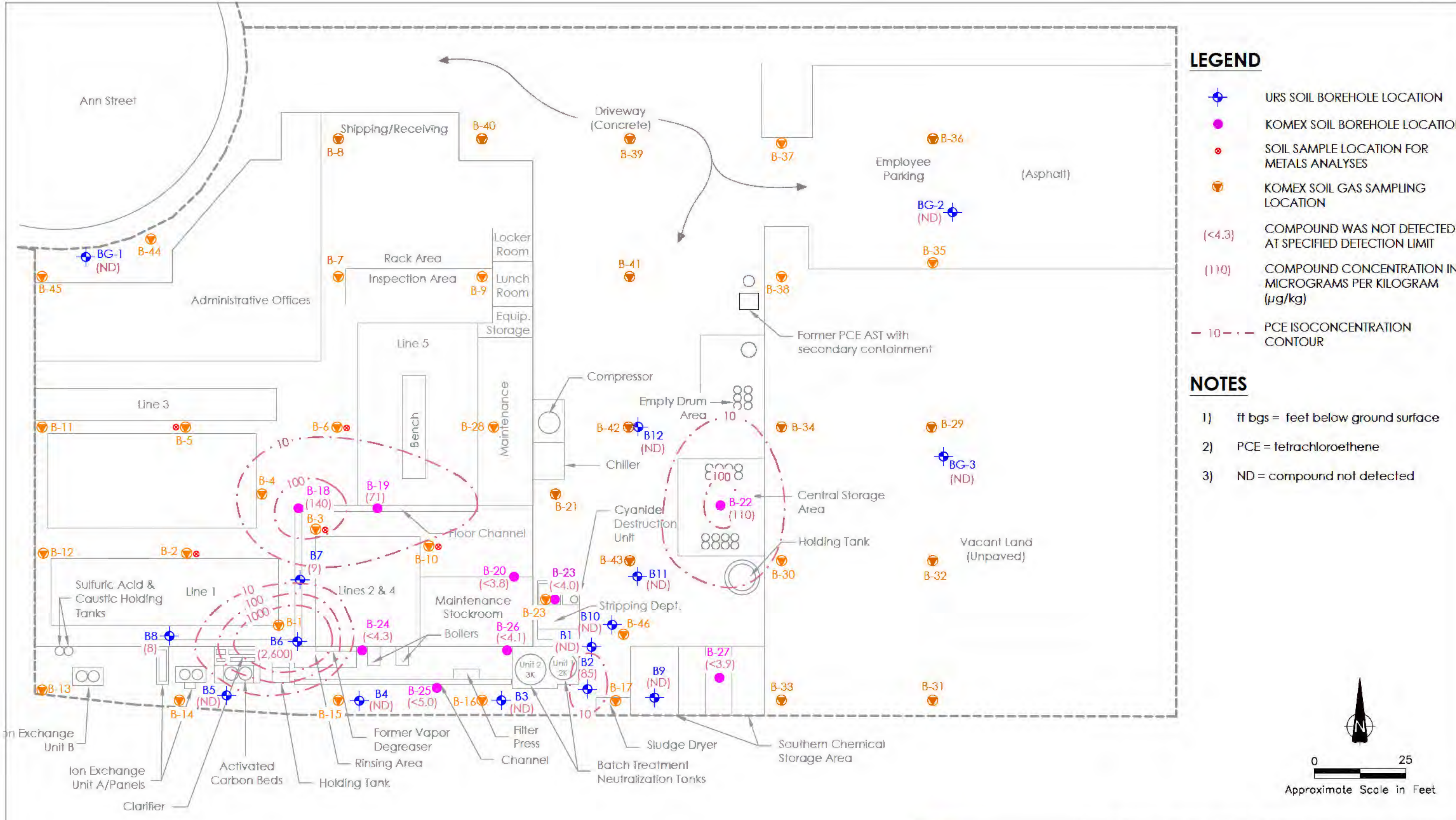
PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA

PCE & TCE IN SOIL (NOVEMBER 2001, FEBRUARY 2002, & SEPTEMBER 2004)

CT	01/2005
MA	H0287A

13



KOMEX

PREPARED SOLELY FOR THE USE OF OUR CLIENT AND NO REPRESENTATION OF ANY KIND IS MADE TO OTHER PARTIES WITH WHICH KOMEX HAS NOT ENTERED INTO A CONTRACT.

ASSOCIATED PLATING COMPANY, 9636 ANN STREET, SANTA FE SPRINGS, CA

PCE IN SOIL AT 4 TO 5 FT BGS (NOVEMBER 2001, FEBRUARY 2002, & SEPTEMBER 2004)

CT	01/2005
MA	H0287A
14	